

Figure 1 A

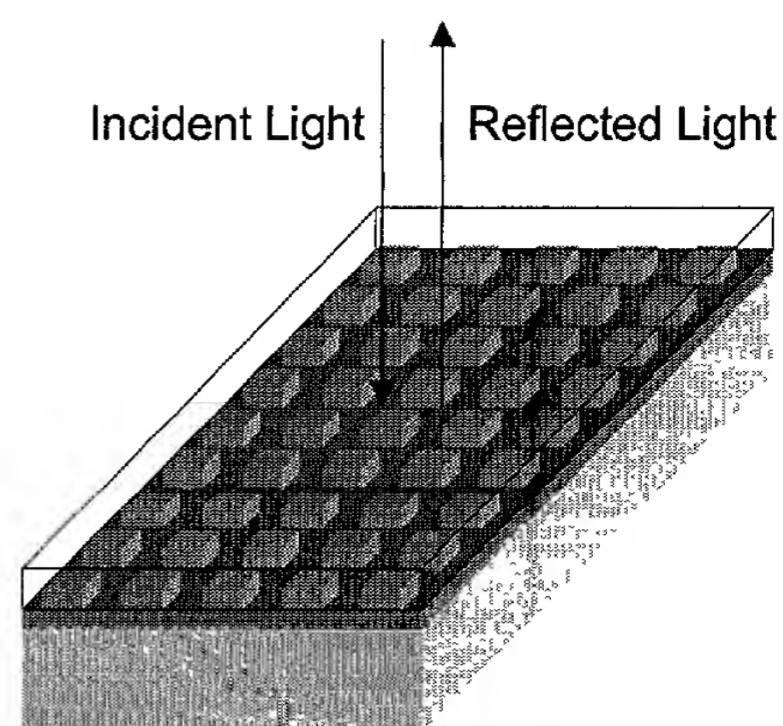


Figure 1 B

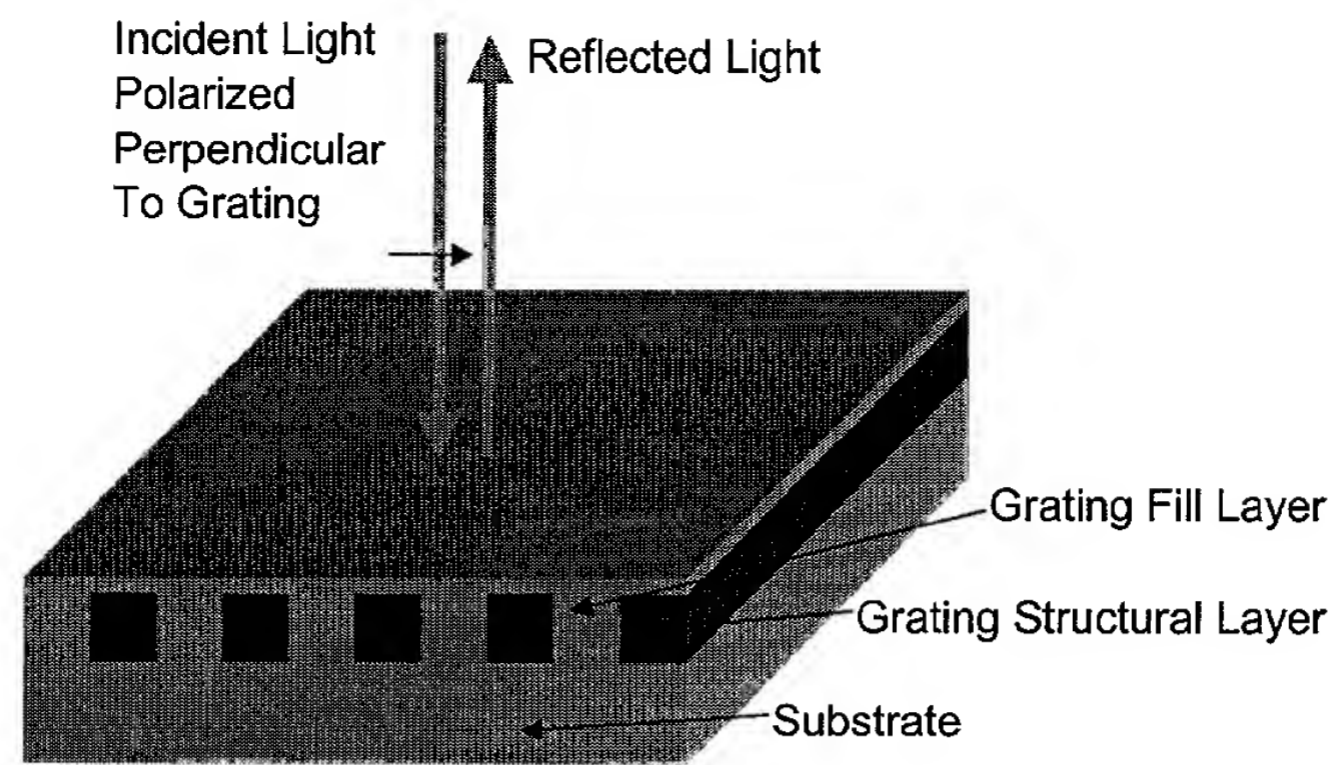


Figure 2.

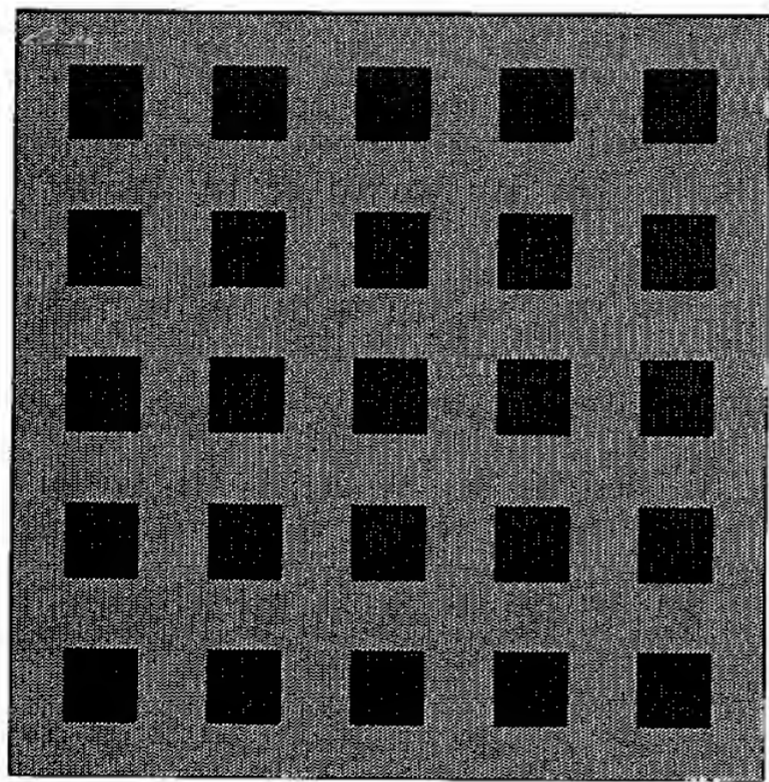


Figure 3A

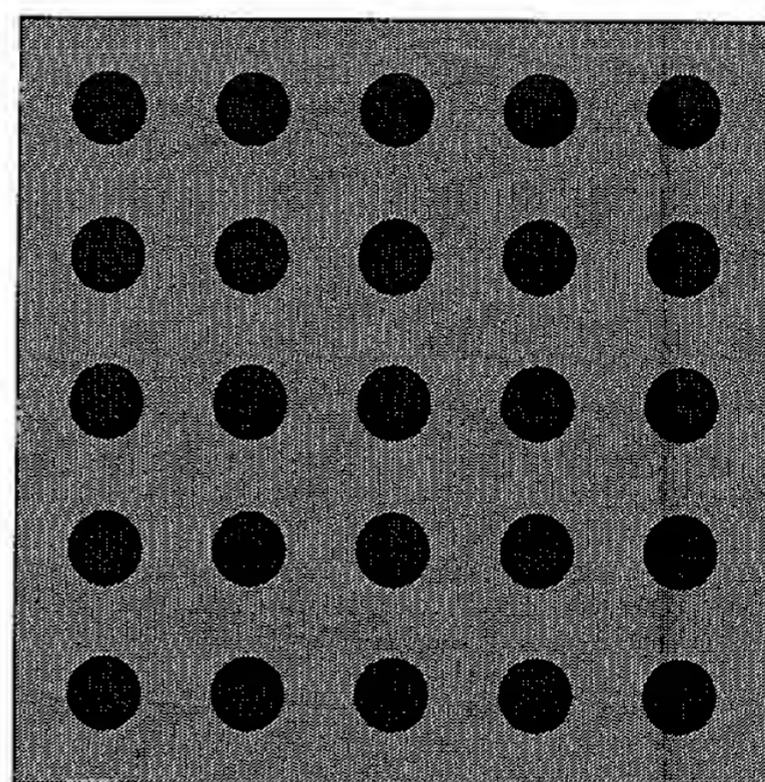


Figure 3B

Figure 3

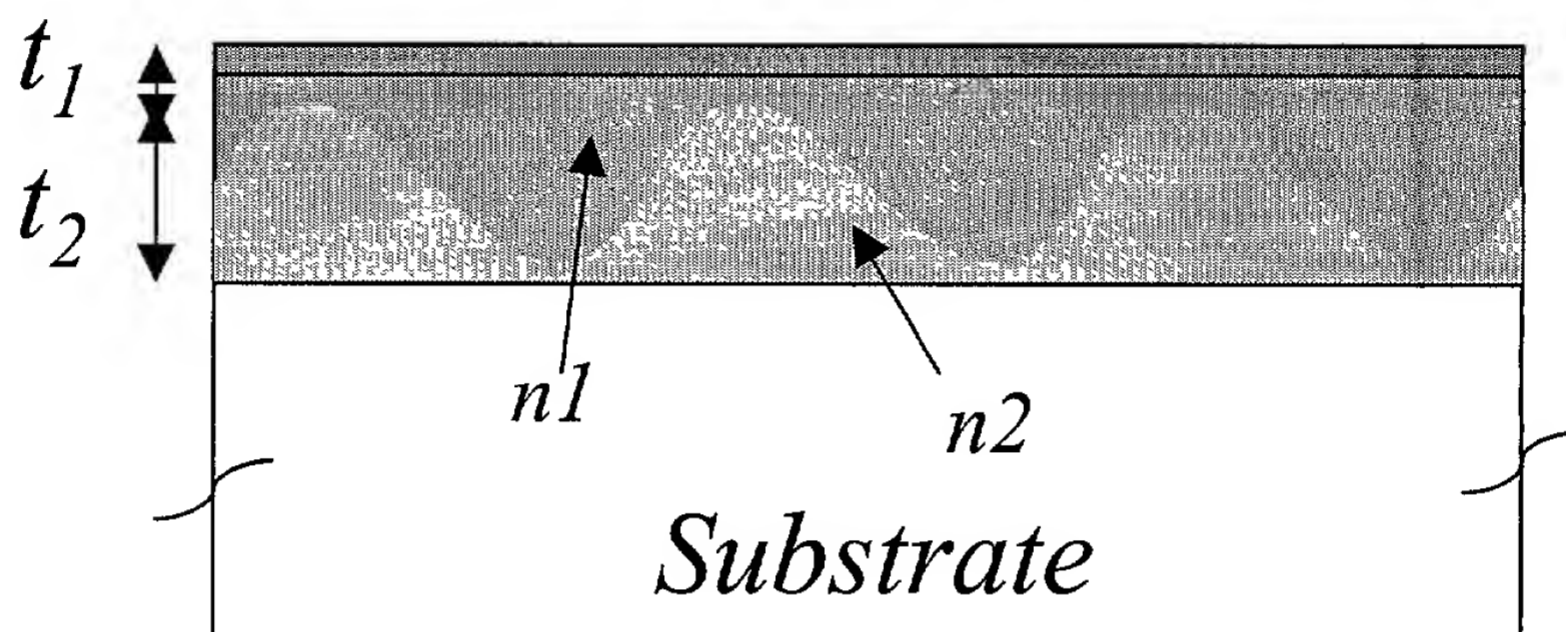


Figure 4.

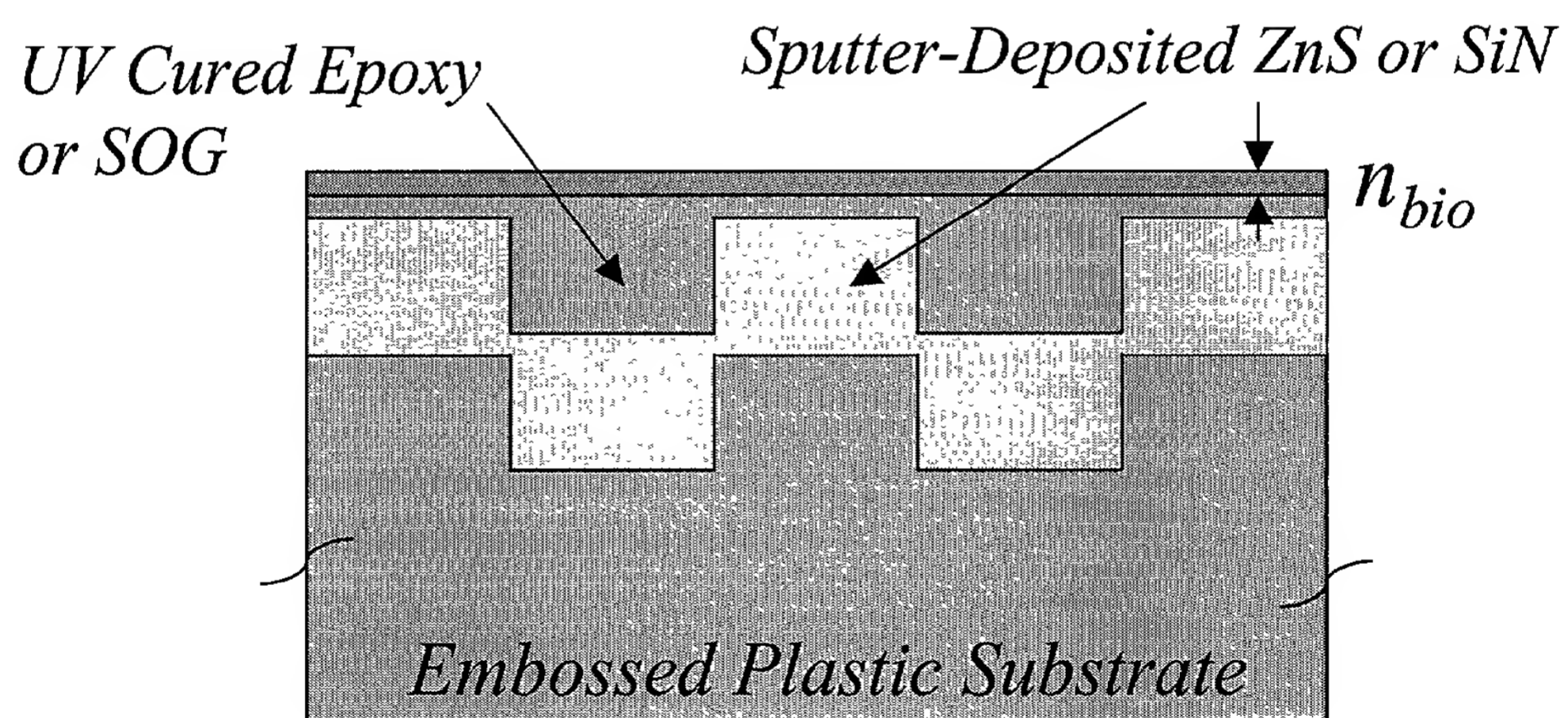
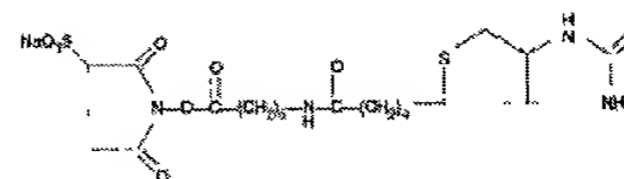


Figure 5.

Amine

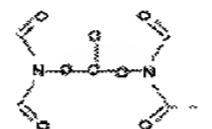
➤ Sulfo-succinimidyl-6-(biotinamido)hexanoate (Sulfo-NHS-LC-Biotin)

• Streptavidin/avidin then biotinylated molecule



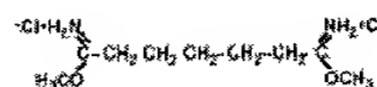
➤ N,N'-disuccinimidyl carbonate (DSC)

• -NH₂, non-cleavable



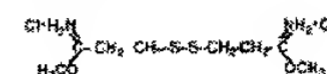
➤ Dimethyl pimelimidate (DMP)

• -NH₂, non-cleavable



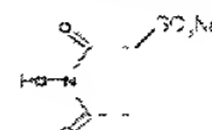
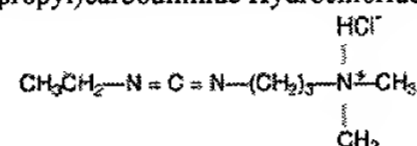
➤ Dimethyl 3,3'-dithiobispropionimidate (DTBP)

• -NH₂, cleavable



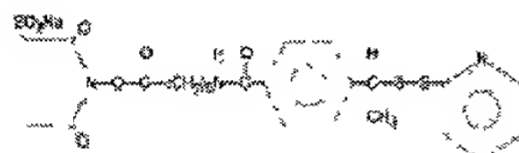
➤ 1-Ethyl-3-(3-Dimethylaminopropyl)carbodiimide Hydrochloride (EDC) & N-Hydroxysulfosuccinimide (Sulfo-NHS)

• -COOH



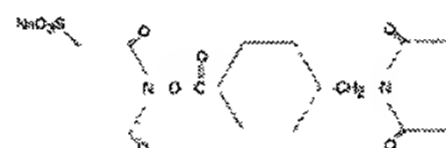
➤ Sulfo-succinimidyl 6-[α-methyl-α-(2-pyridyl-dithio)toluamido]hexanoate (Sulfo-LC-SMPT)

• -SH, cleavable



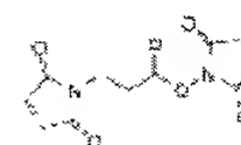
➤ Sulfo-succinimidyl 4-(N-maleimidomethyl)cyclohexane-1-carboxylate (Sulfo-SMCC)

• -SH, non-cleavable



➤ N-(β-Maleimidopropoxy) succinimide ester (BMPS)

• -SH, non-cleavable



Aldehyde

➤ Directly with aldehyde or first amino then aldehyde

• -NH₂

Ni(II)

➤ Using nitrilotriacetic acid (NTA) group, which forms a chelate with Ni(II)

• His-tagged molecules

Figure 6

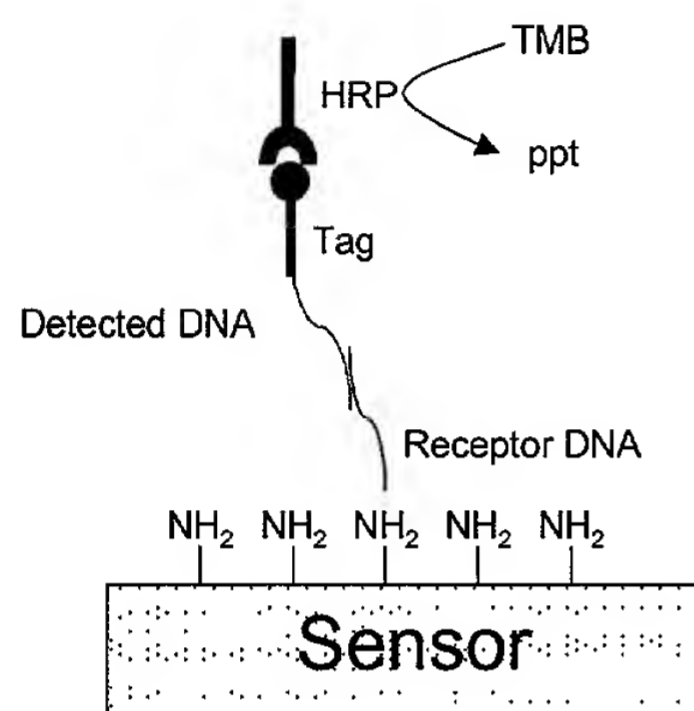


Figure 7A

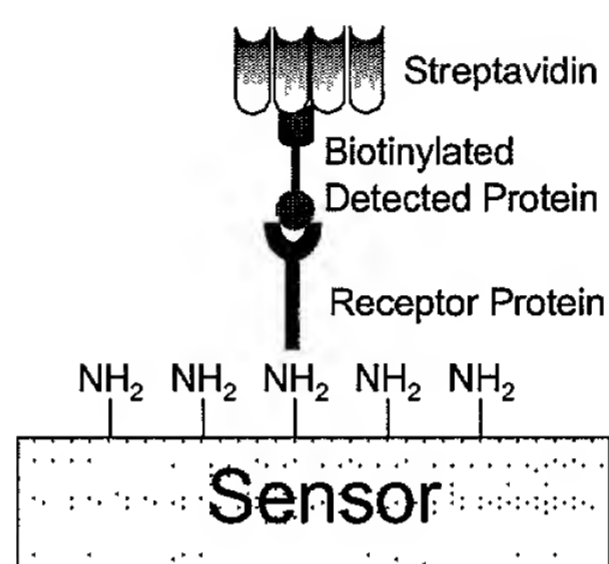


Figure 7B

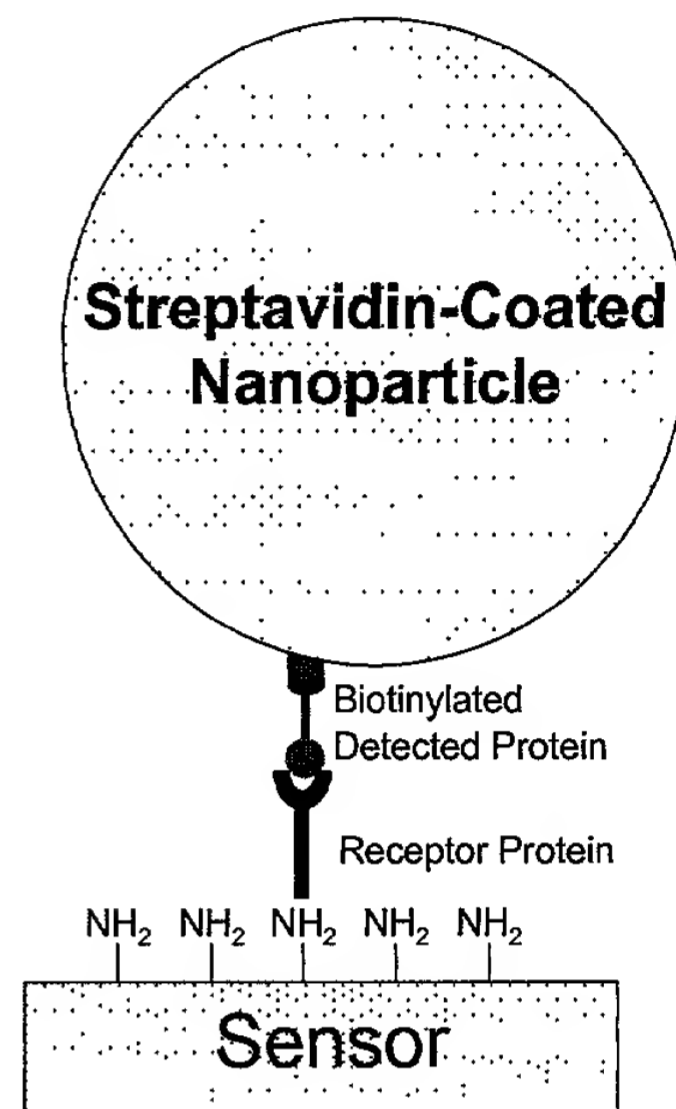


Figure 7C

Figure 7

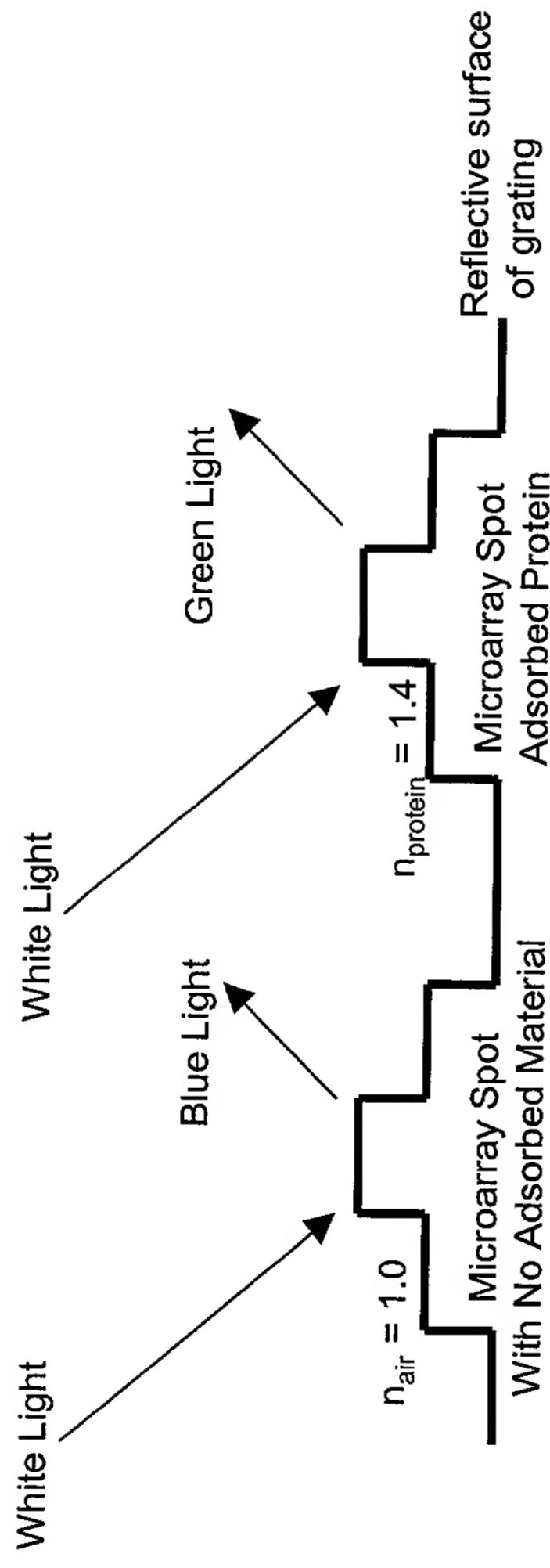


FIGURE 8

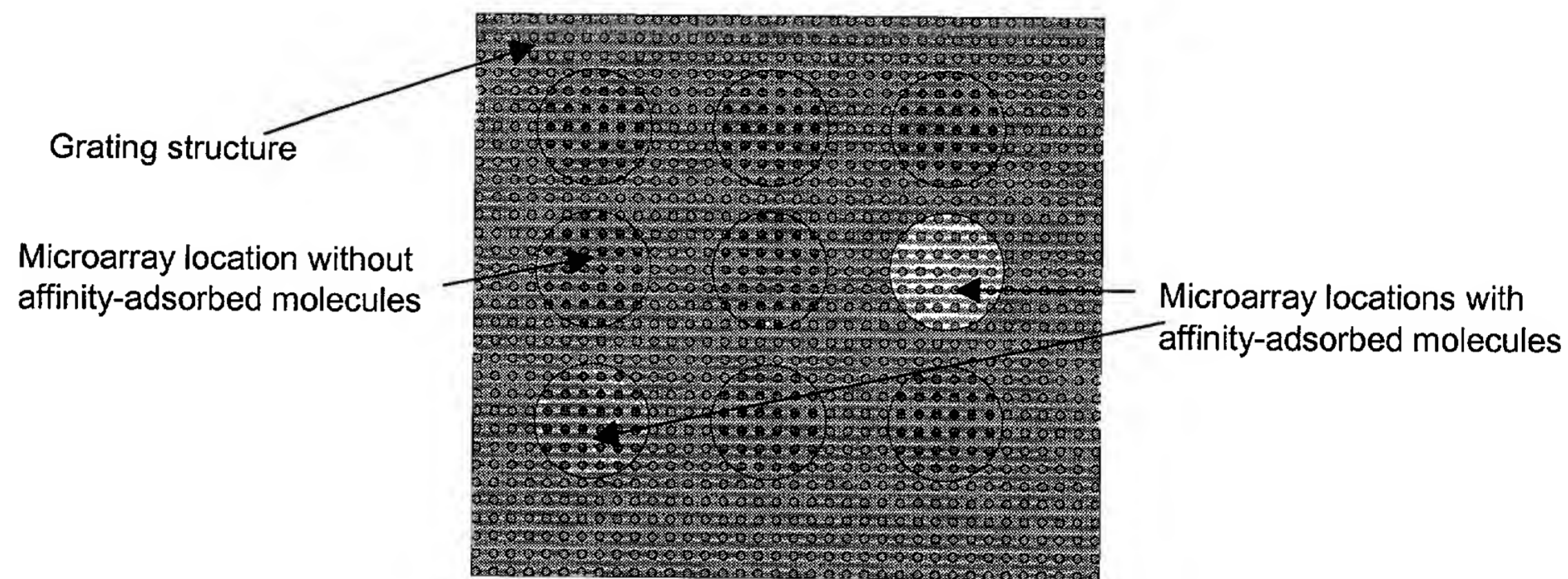


FIGURE 9

□ Microtiter plate

□ Microarray slide

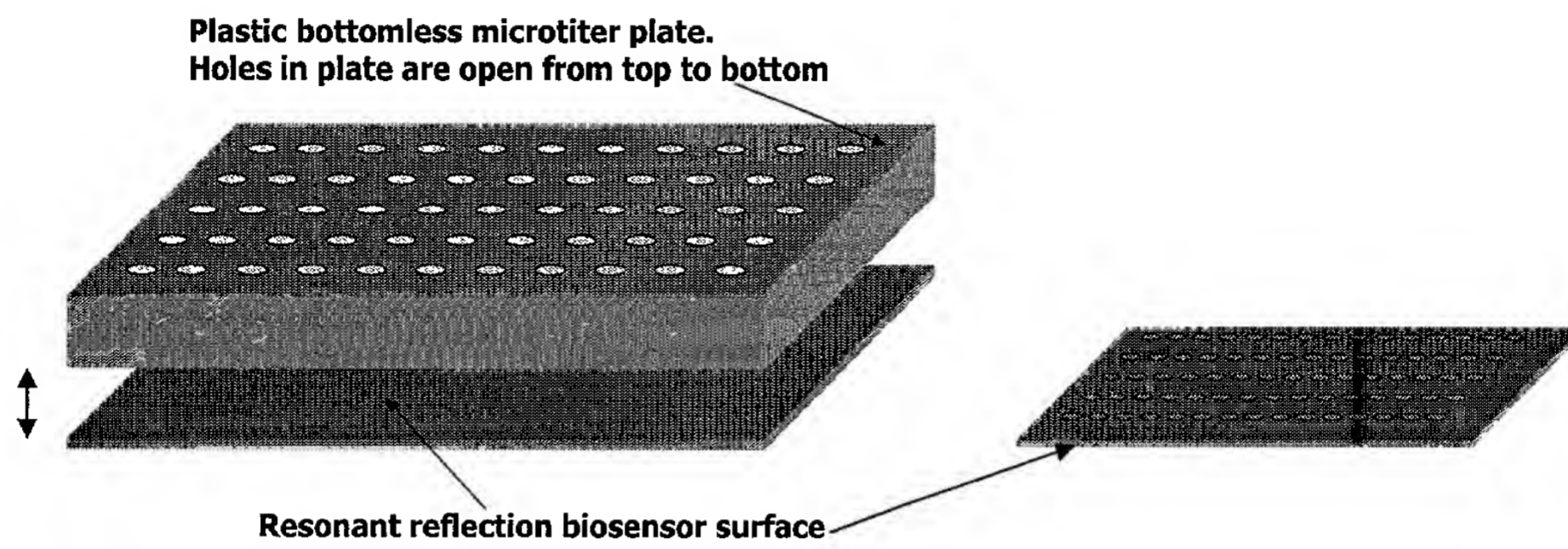


Figure 10A

Figure 10B

Figure 10

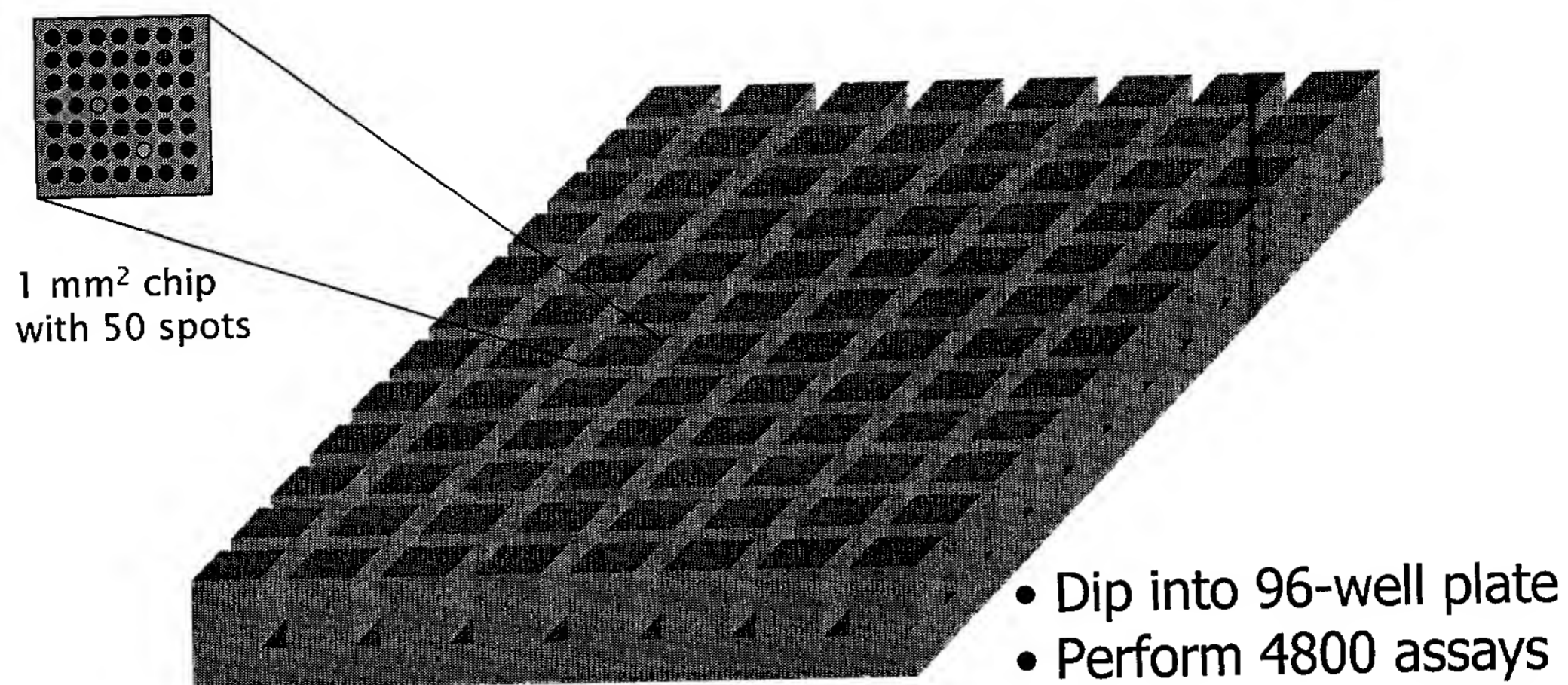


Figure 11

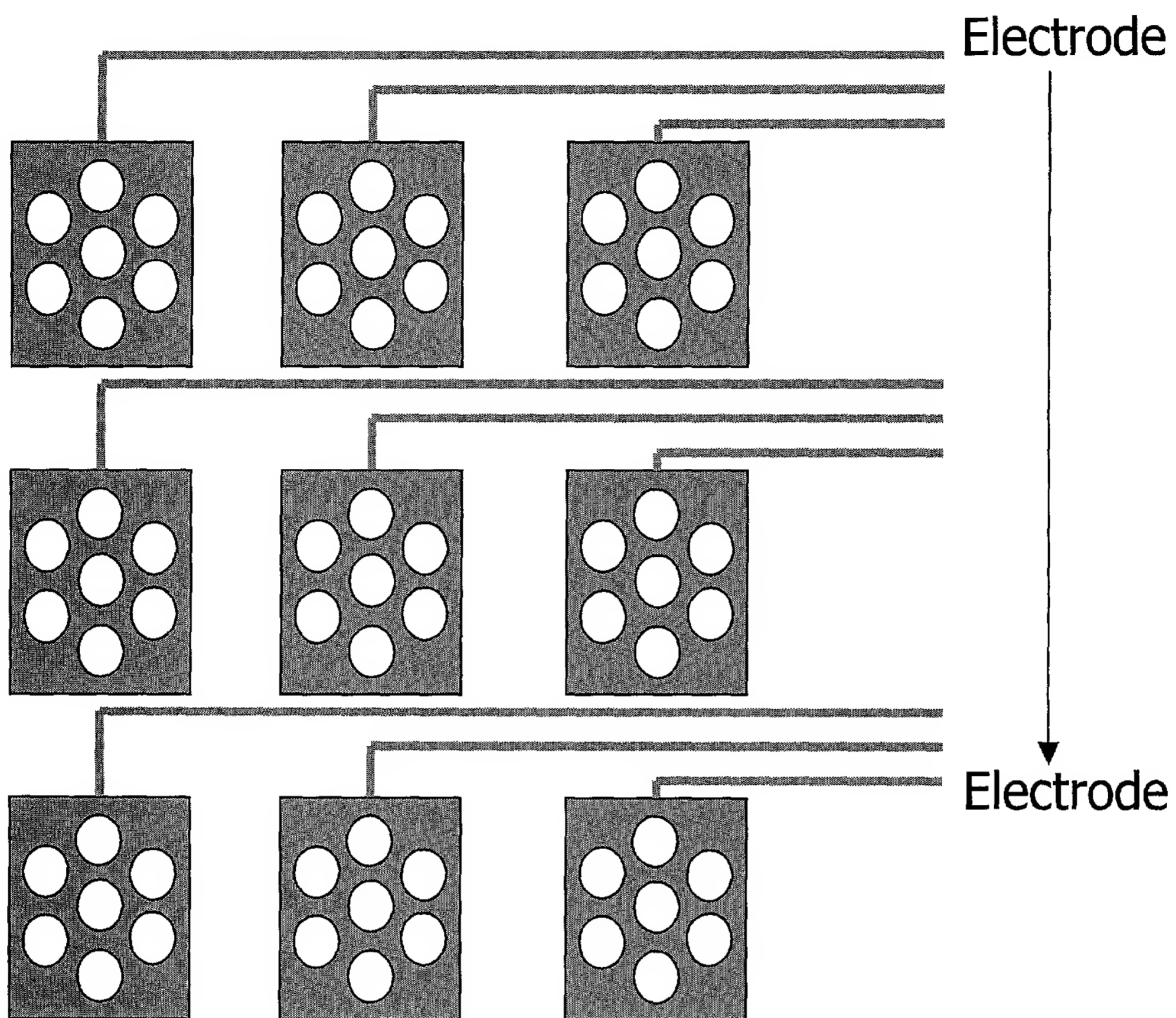
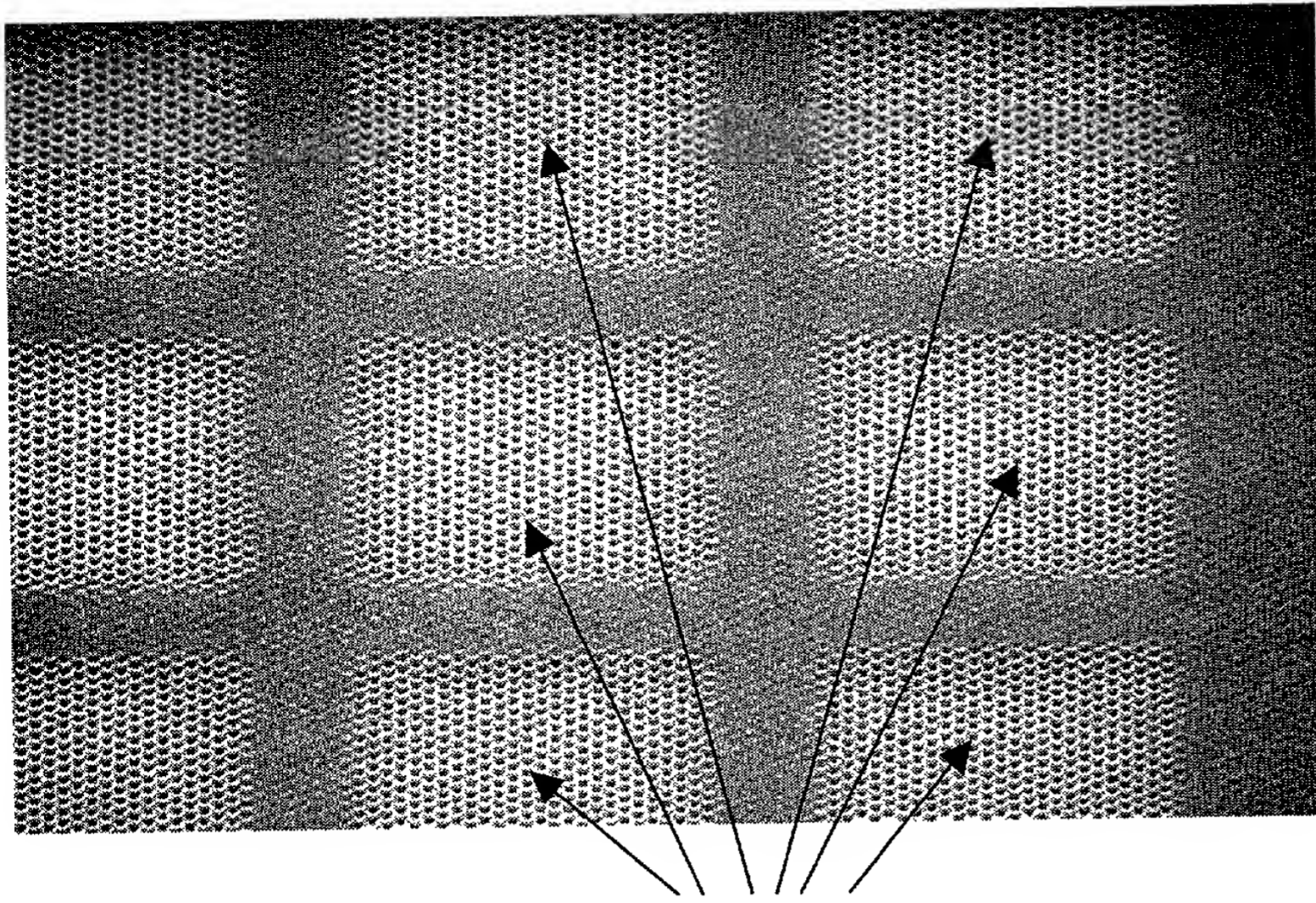


FIGURE 12



Separate electrode grating regions

FIGURE 13

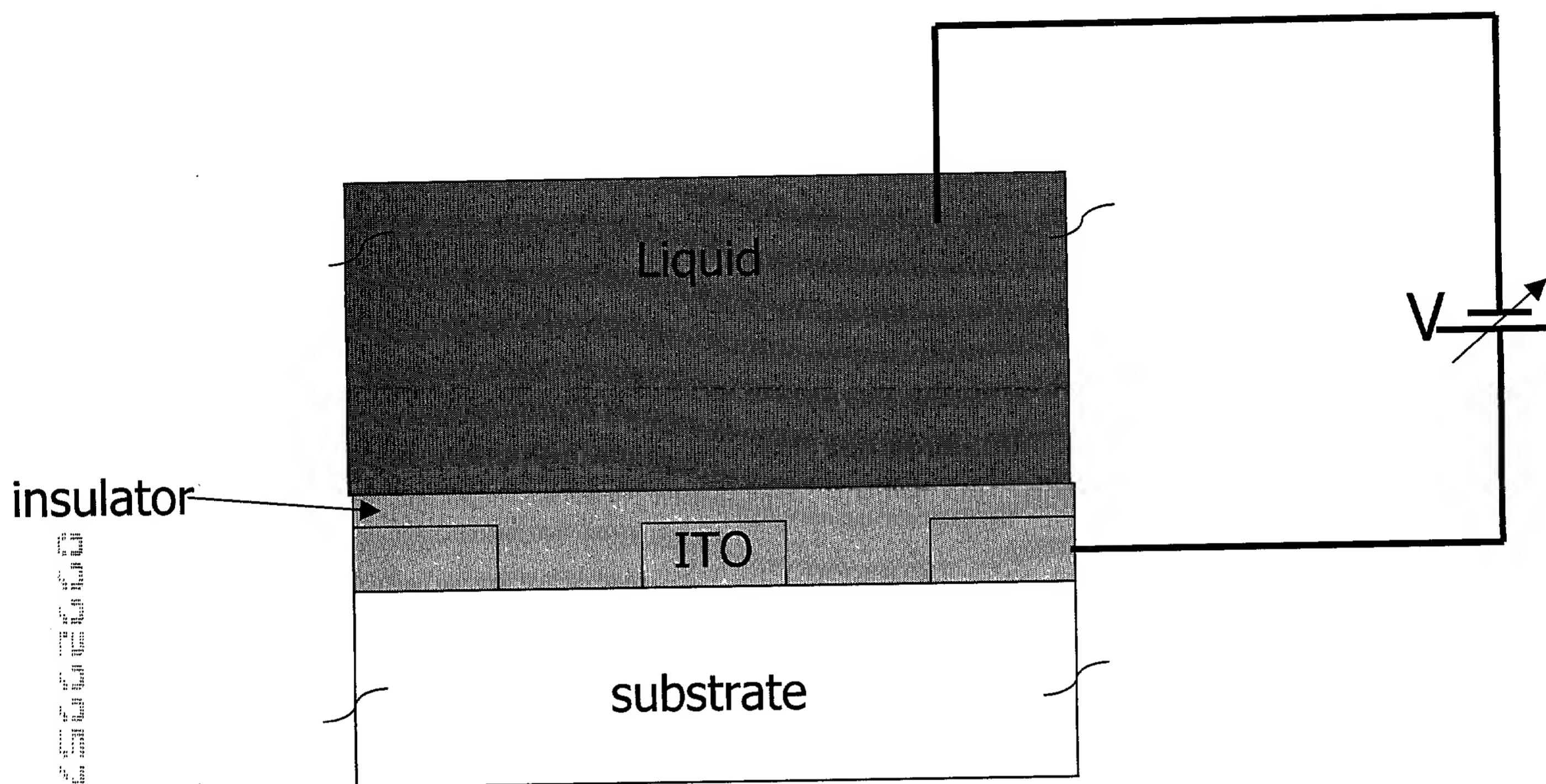


FIGURE 14

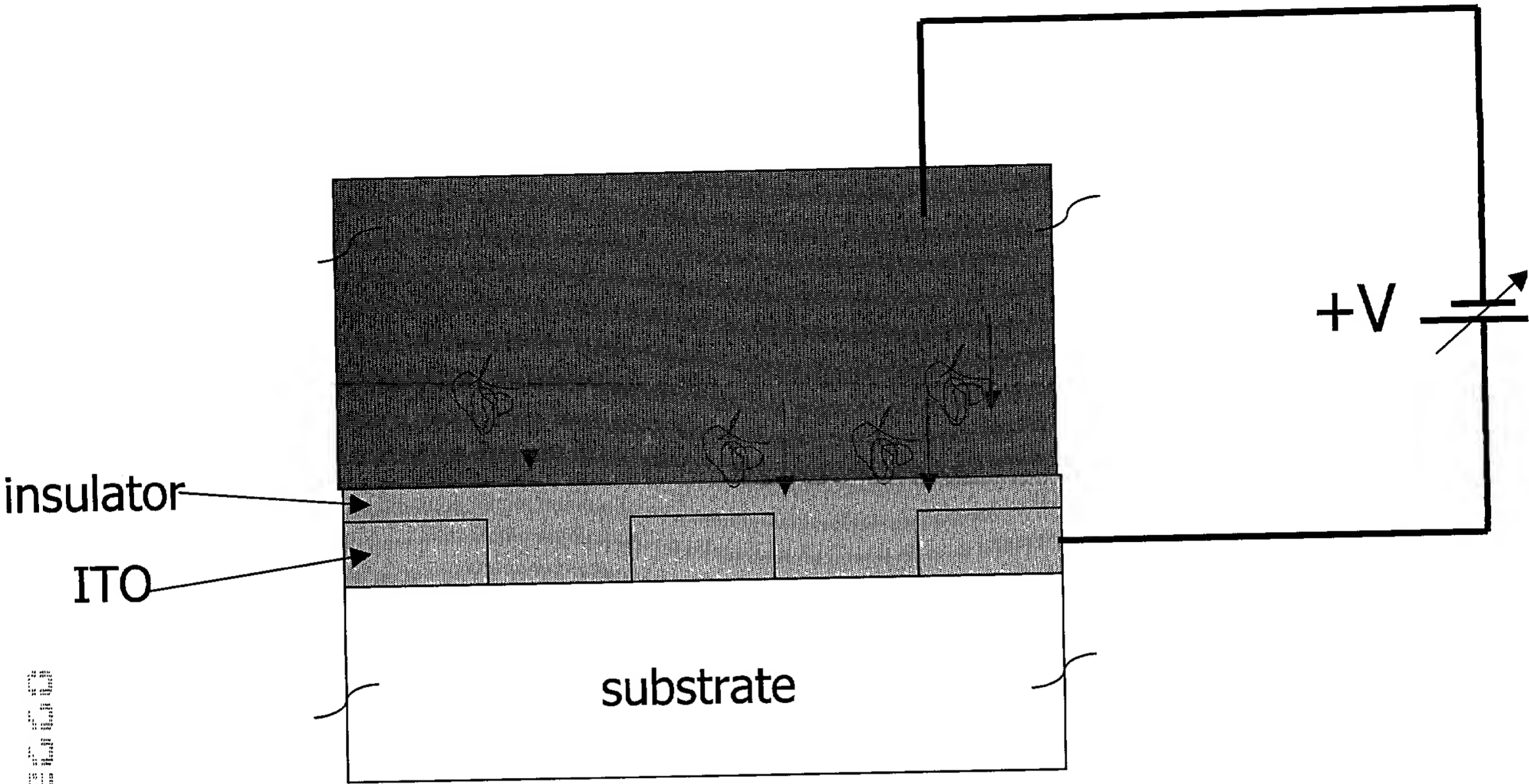


FIGURE 15

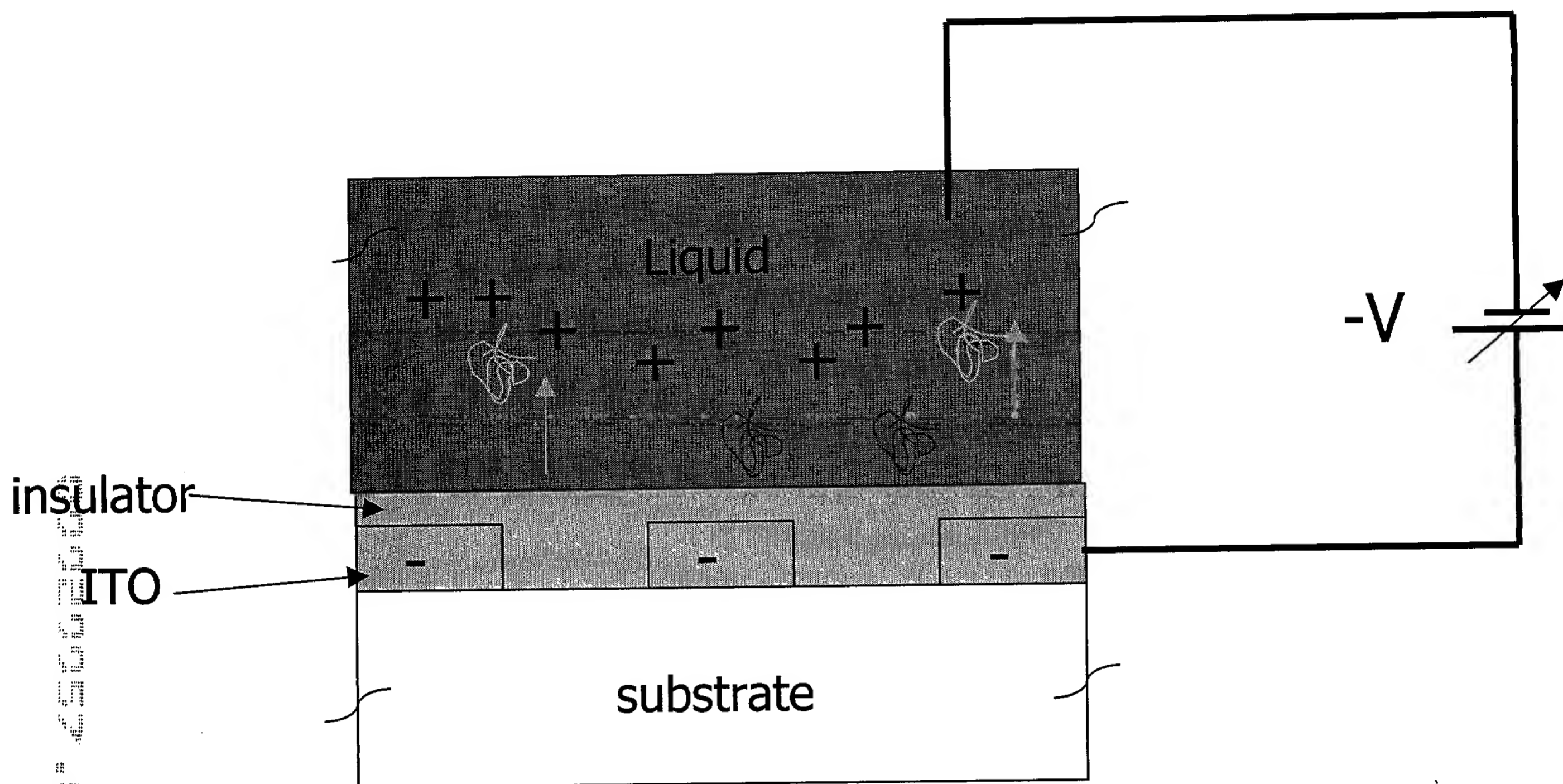


FIGURE 16

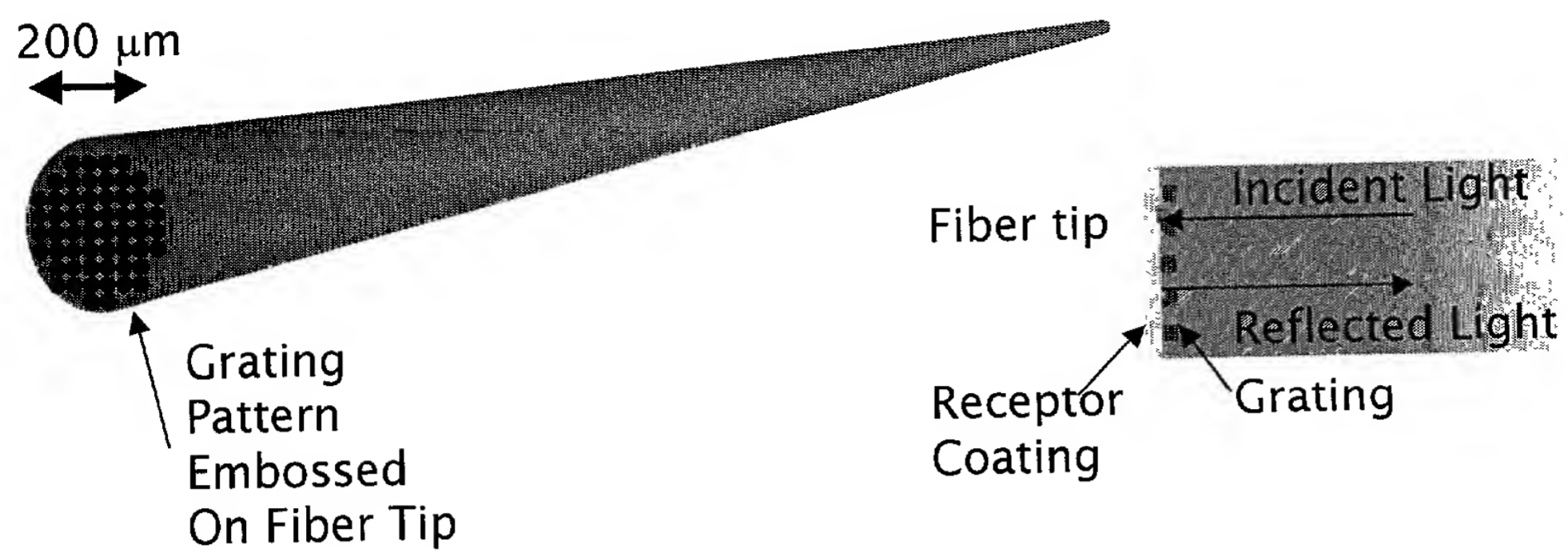


Figure 17

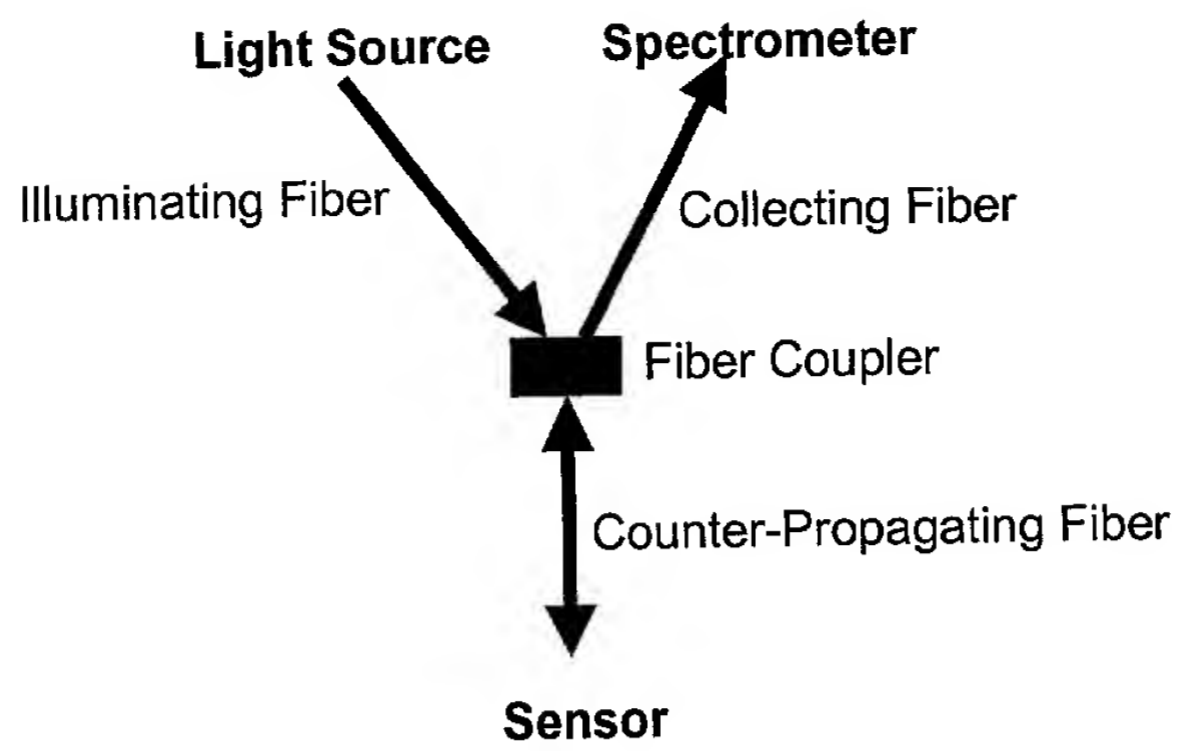


Figure 18

Peak Wavelength

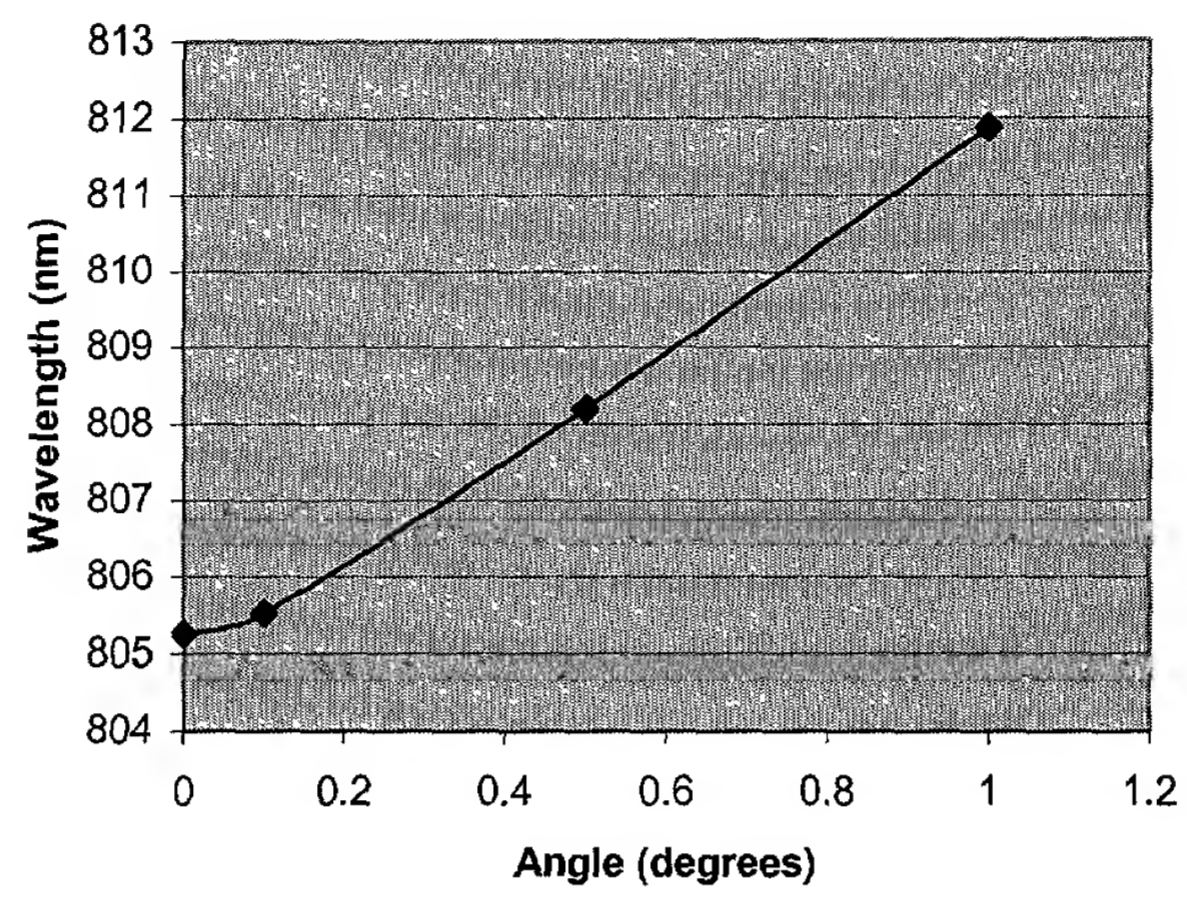


Figure 19

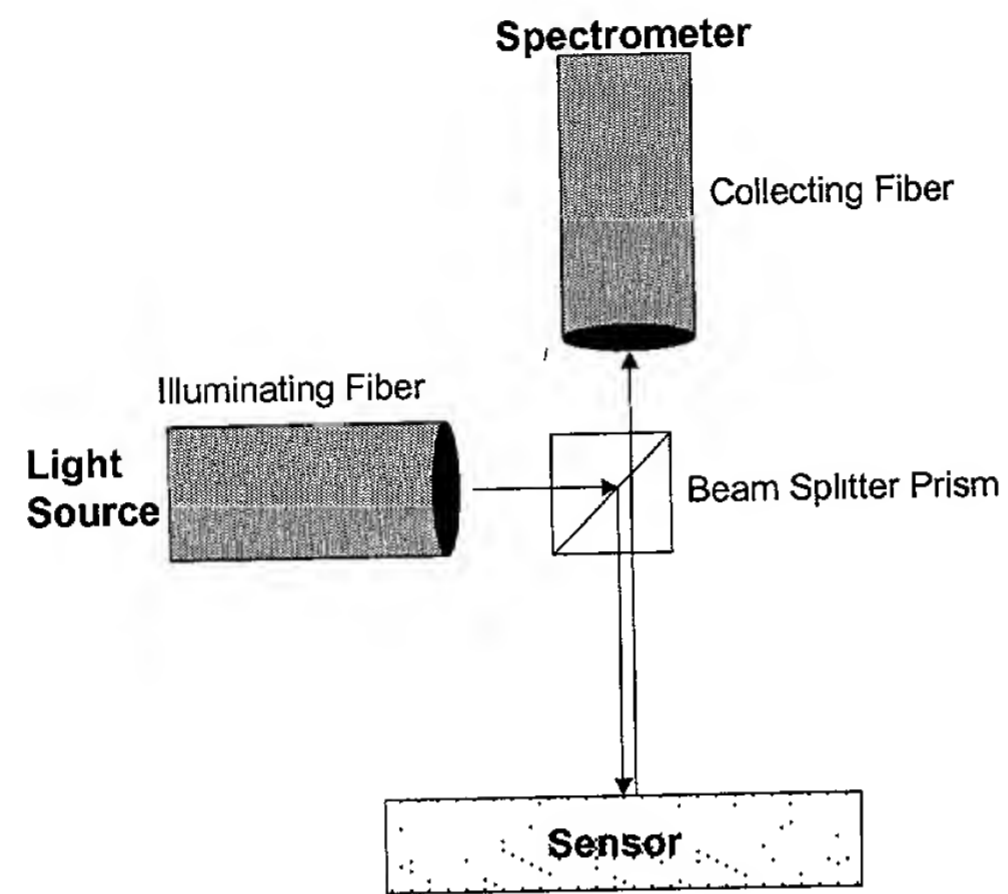


Figure 20

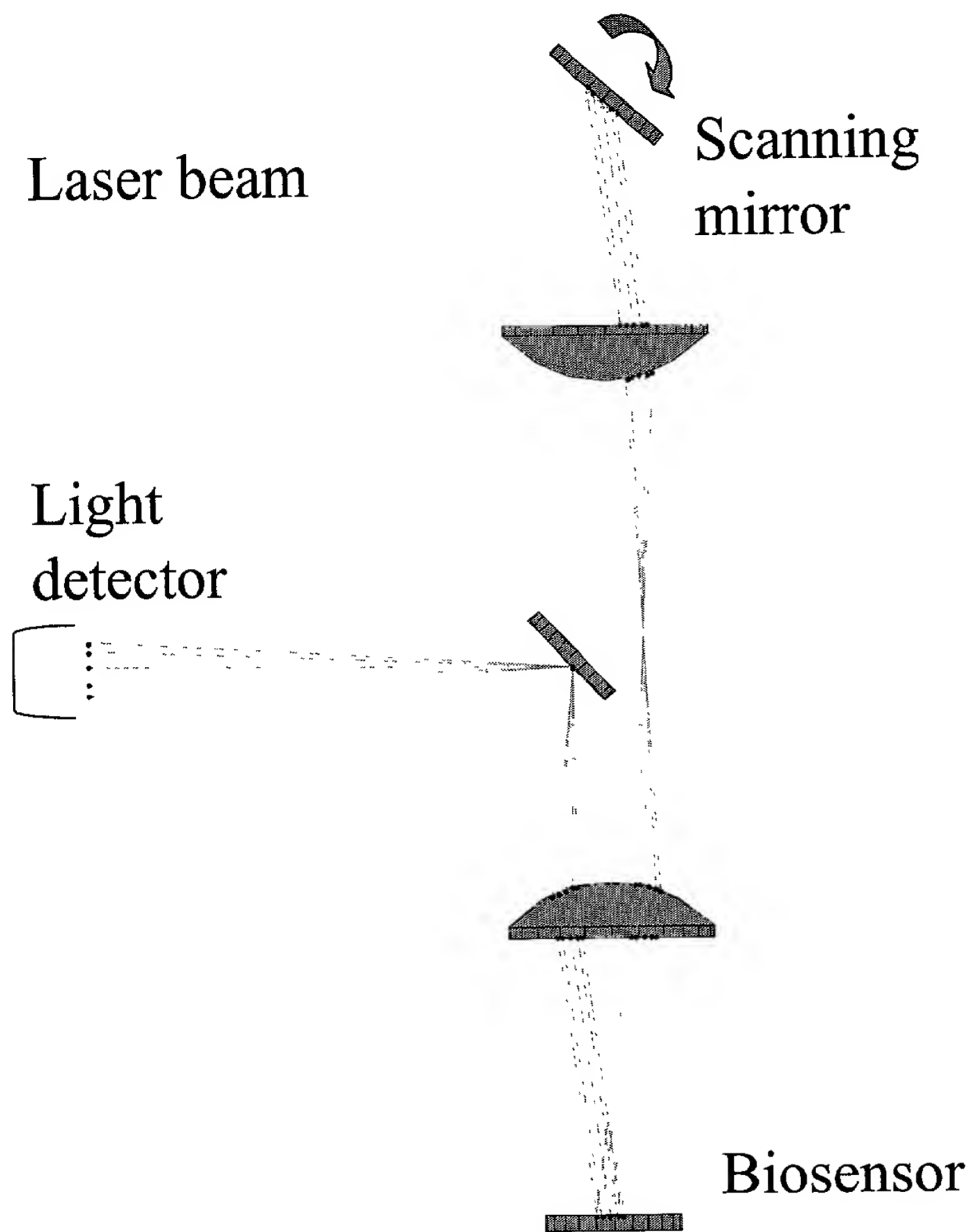


Figure 21

20250909 09:54
20250909 09:54

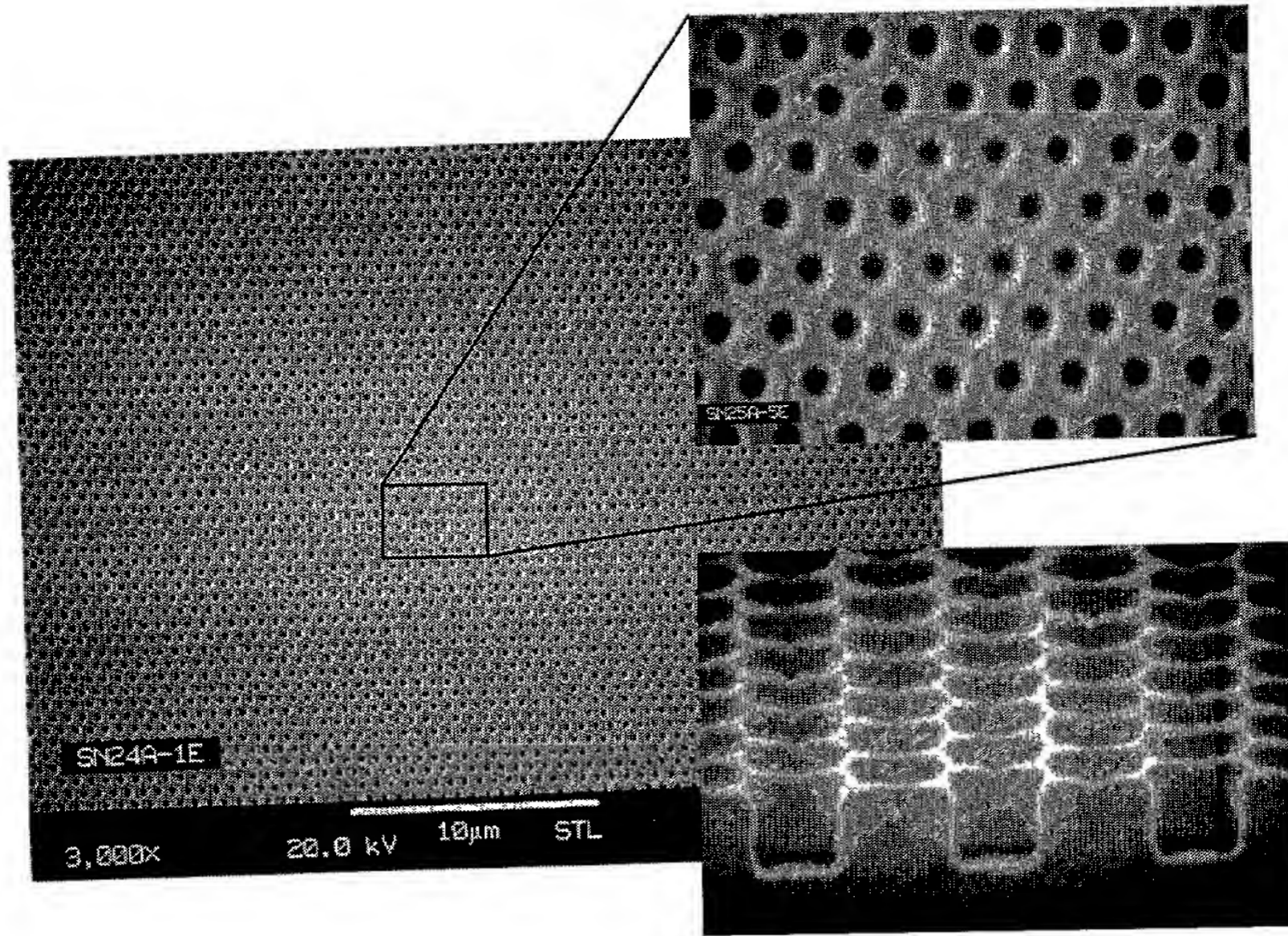


Figure 22

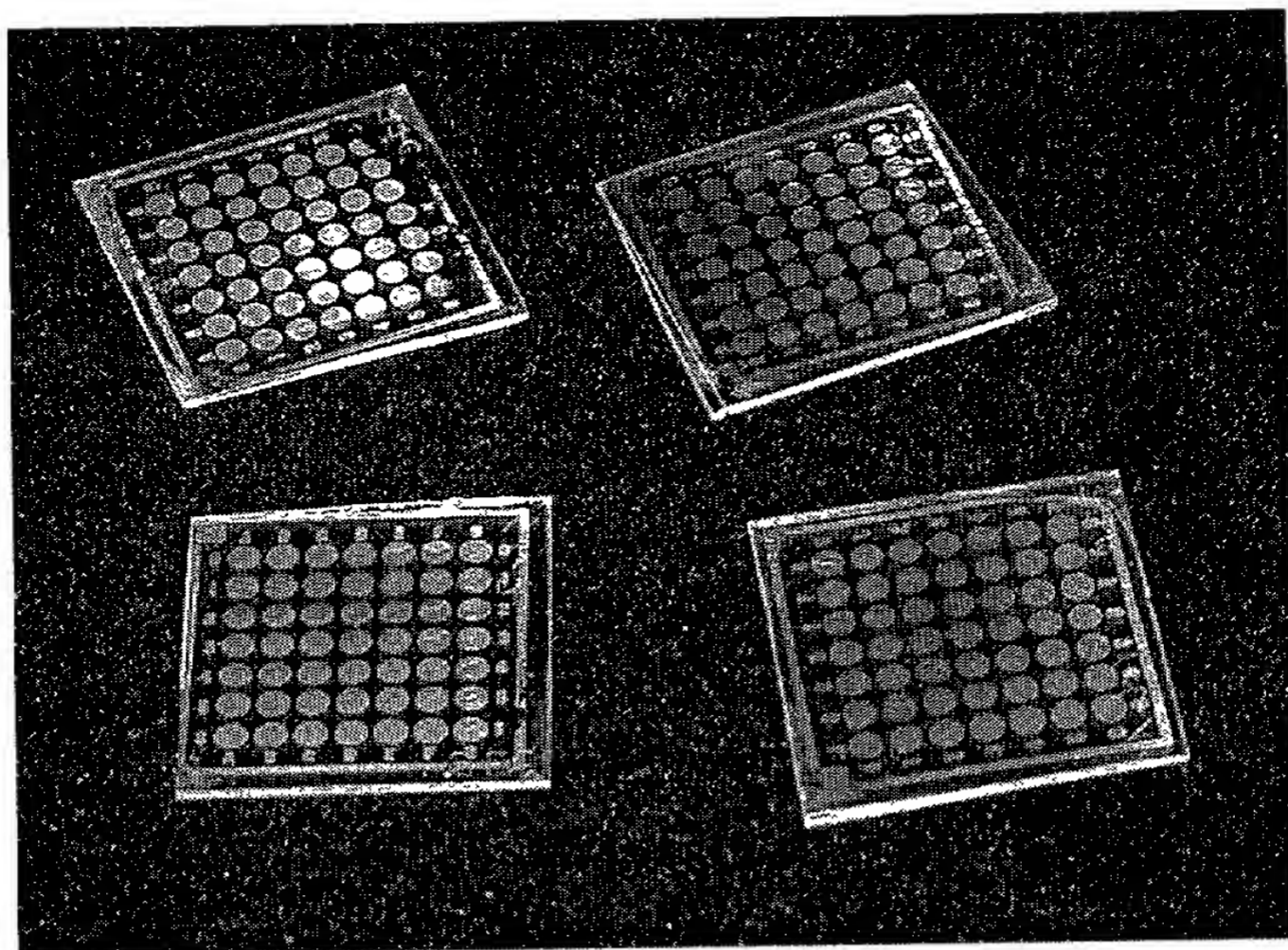


Figure 24

Albumin Deposition on Resonant Reflector

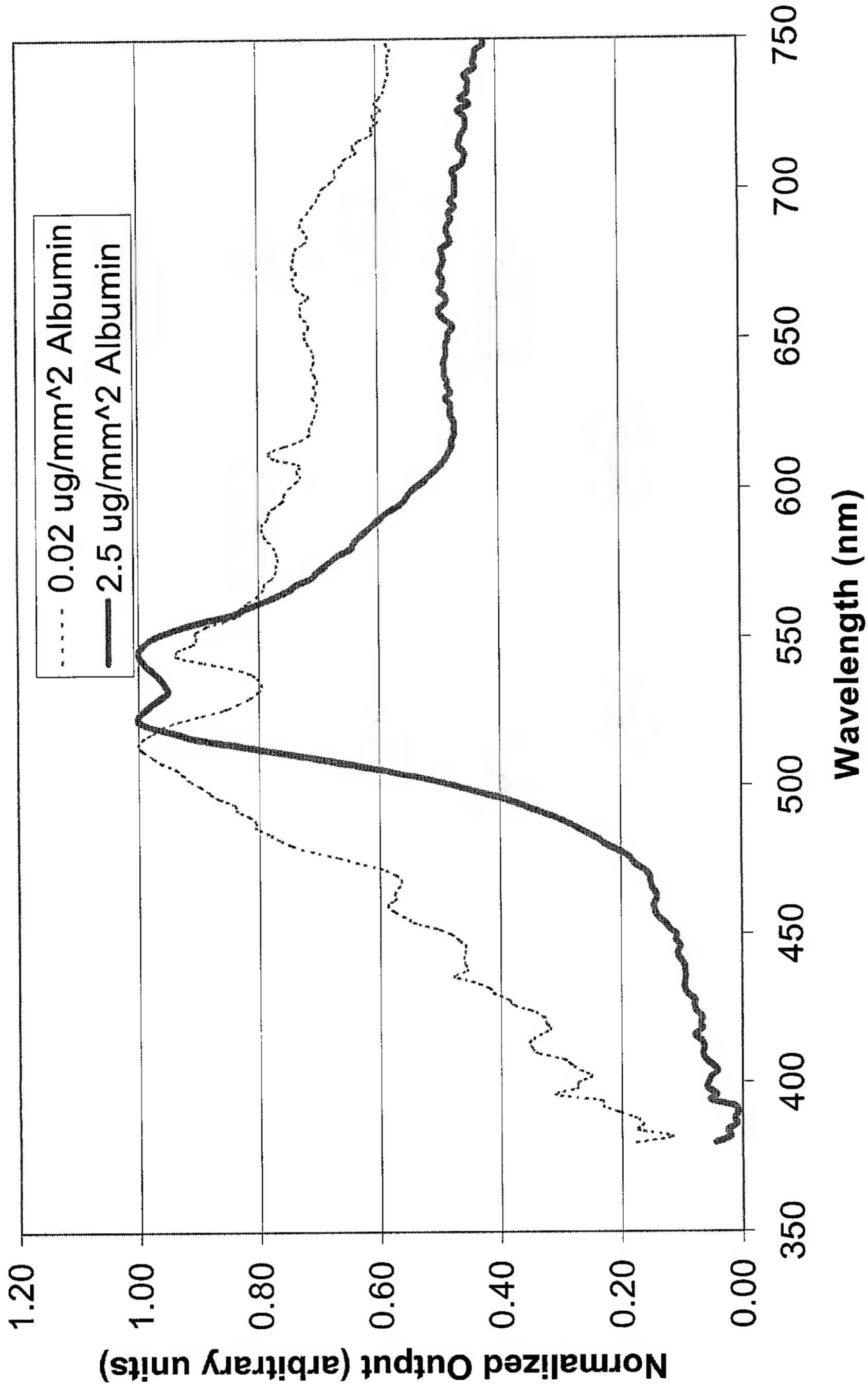


Figure 25

Figure 26

Resonant Reflector Measured in Water

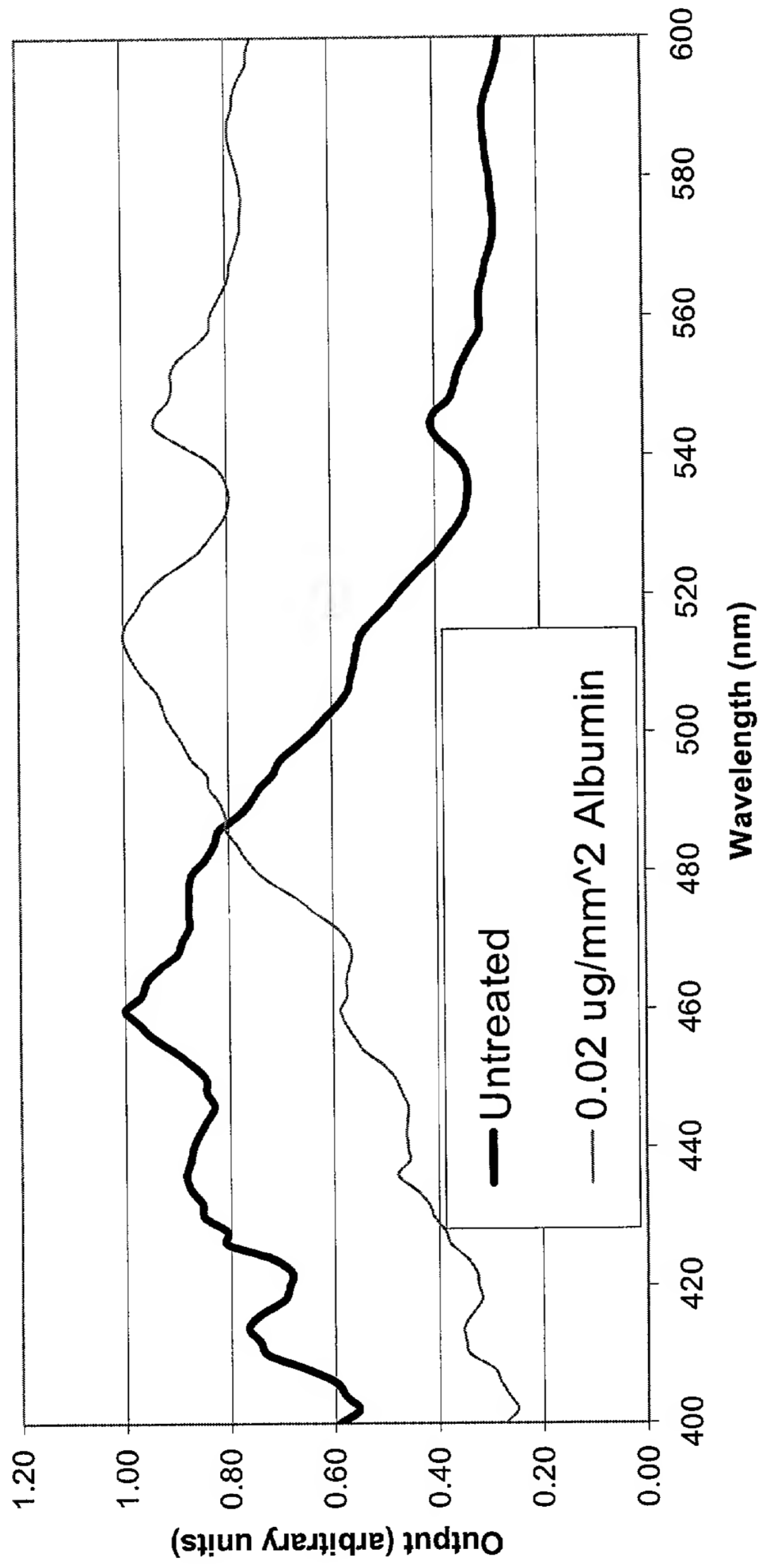


Figure 27

Bacteria immobilization on structure

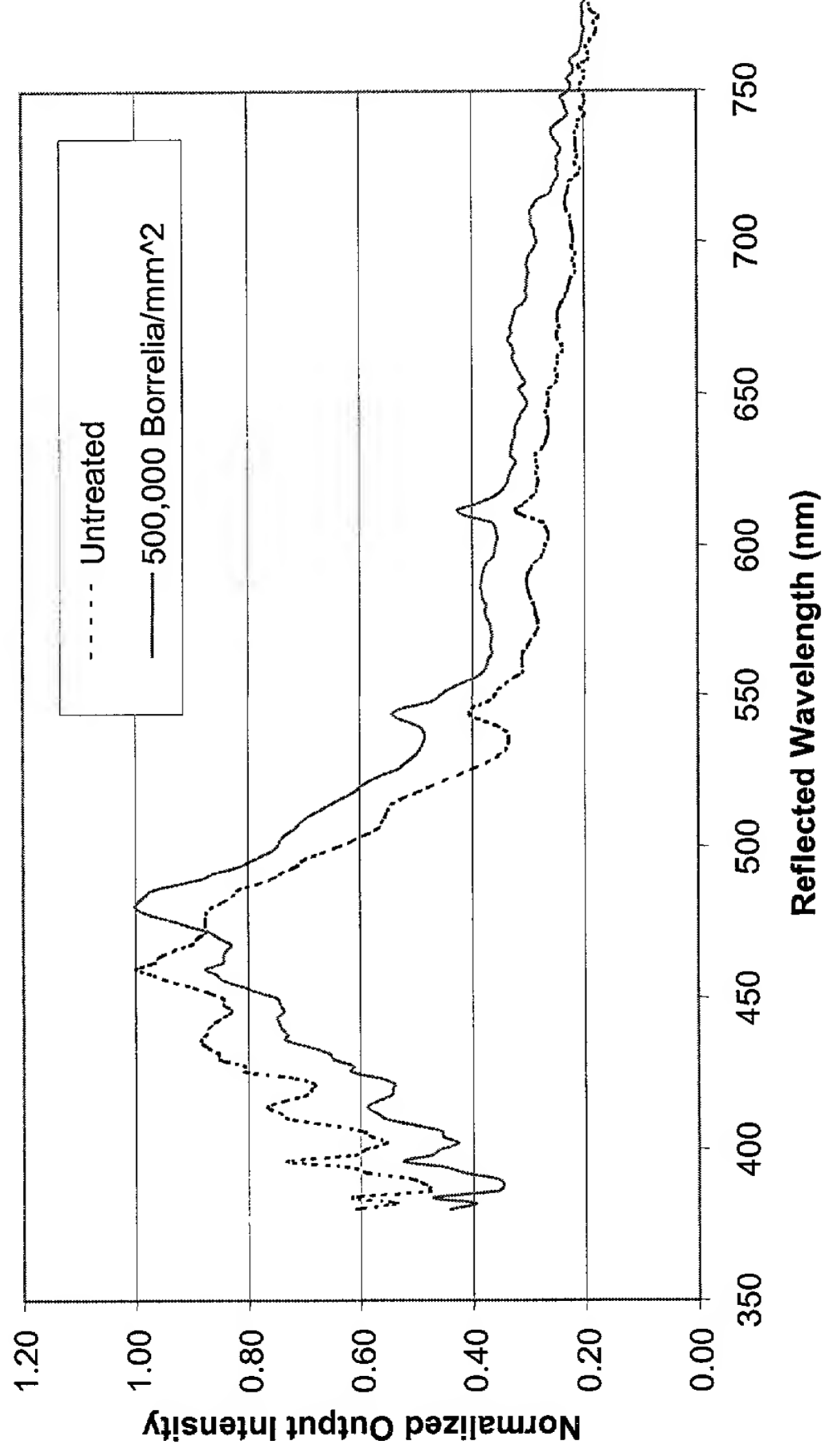


Figure 28

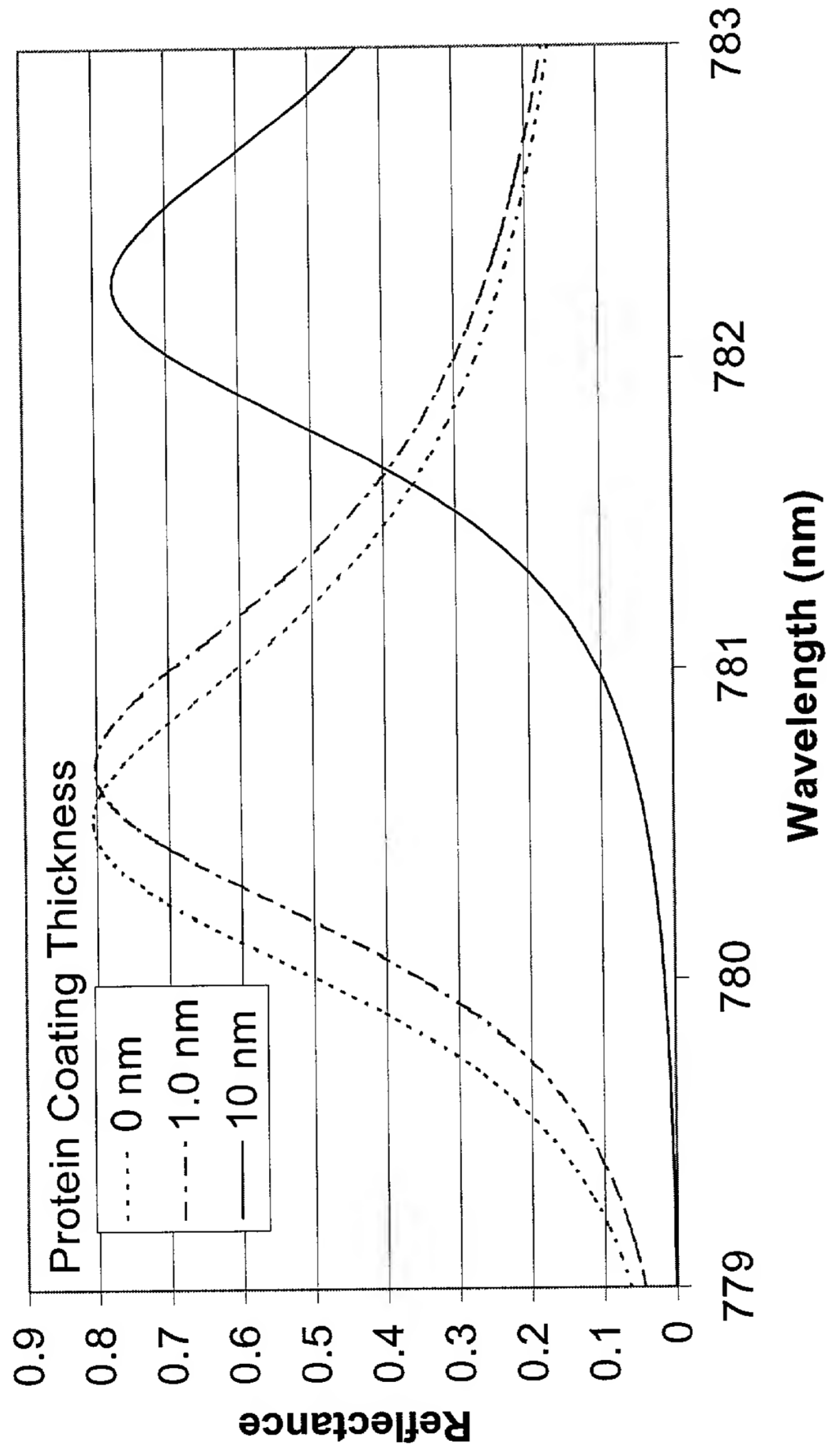
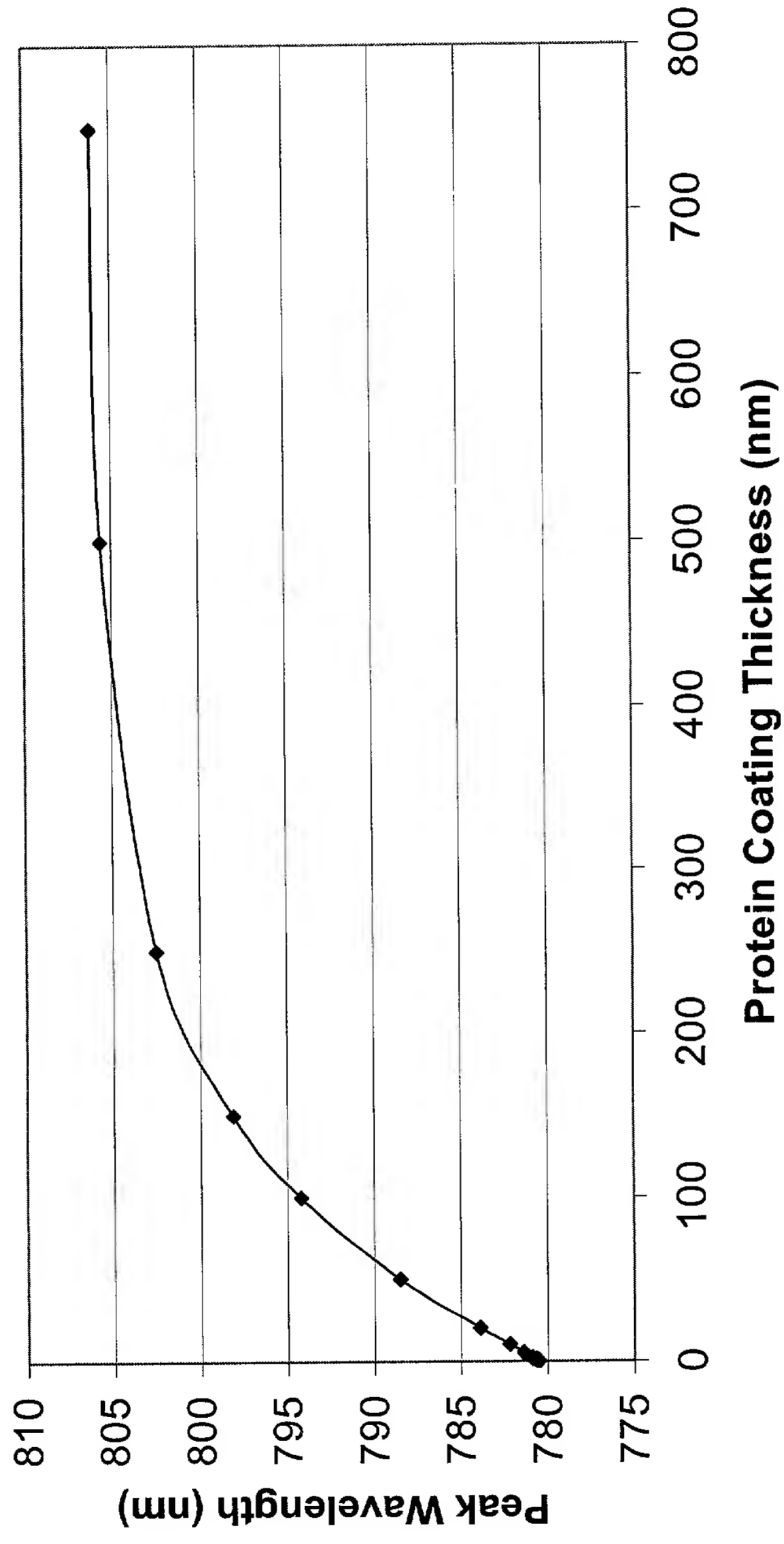


Figure 29



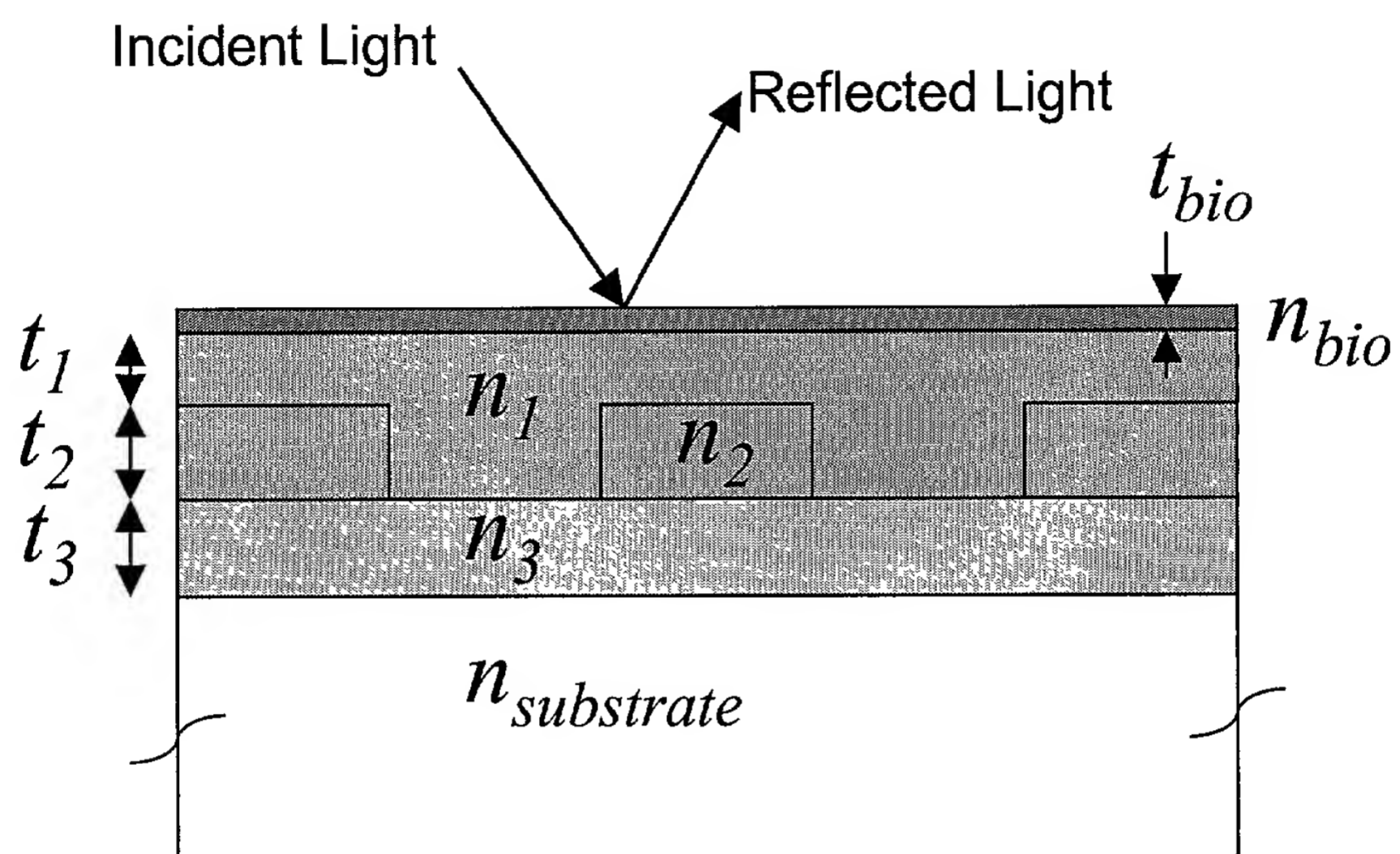


FIGURE 30

Reflected Resonance with Deposited Protein

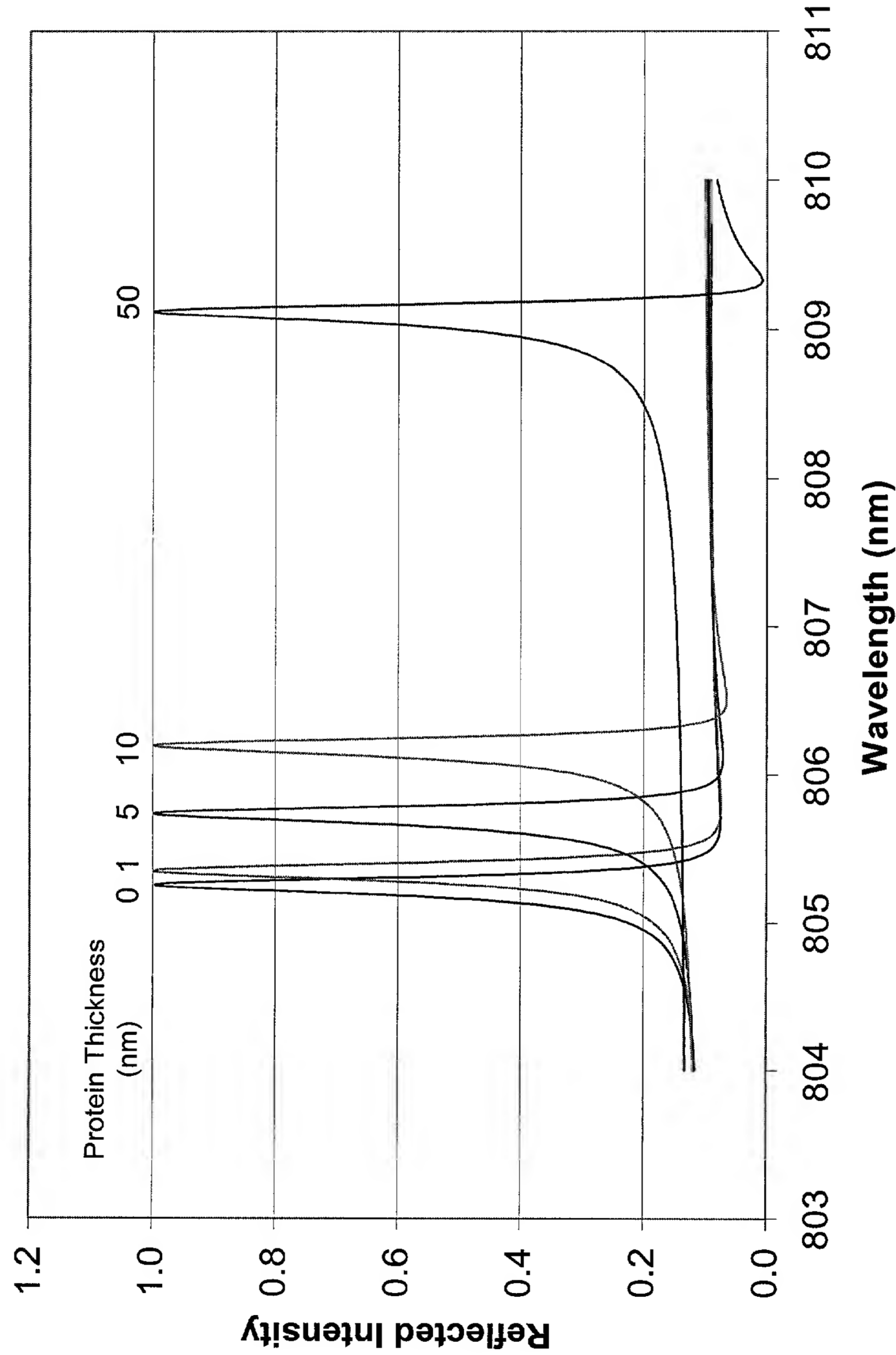


Figure 31

Resonant Peak Wavelength Dependence on Deposited Protein Thickness

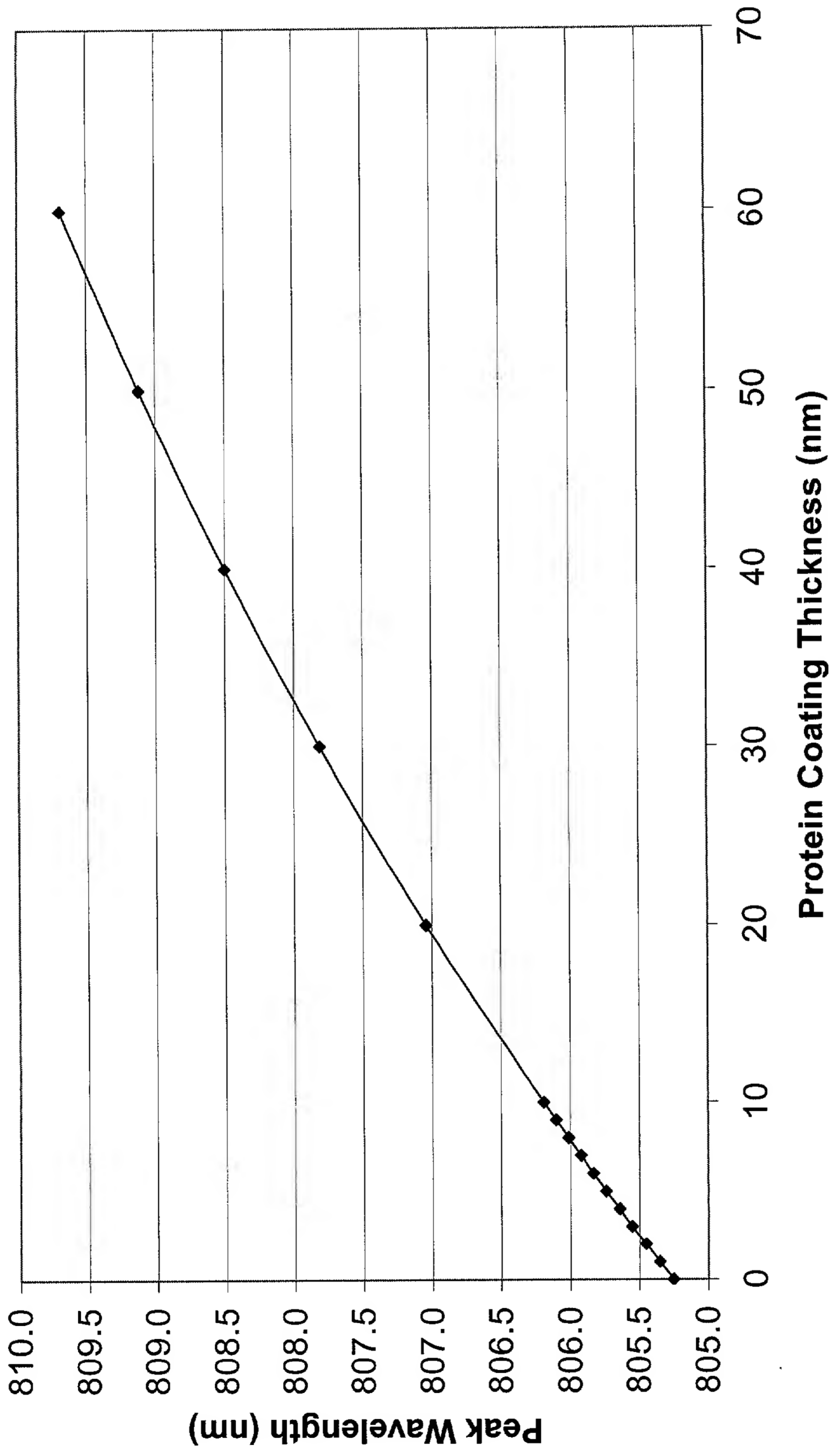


Figure 32

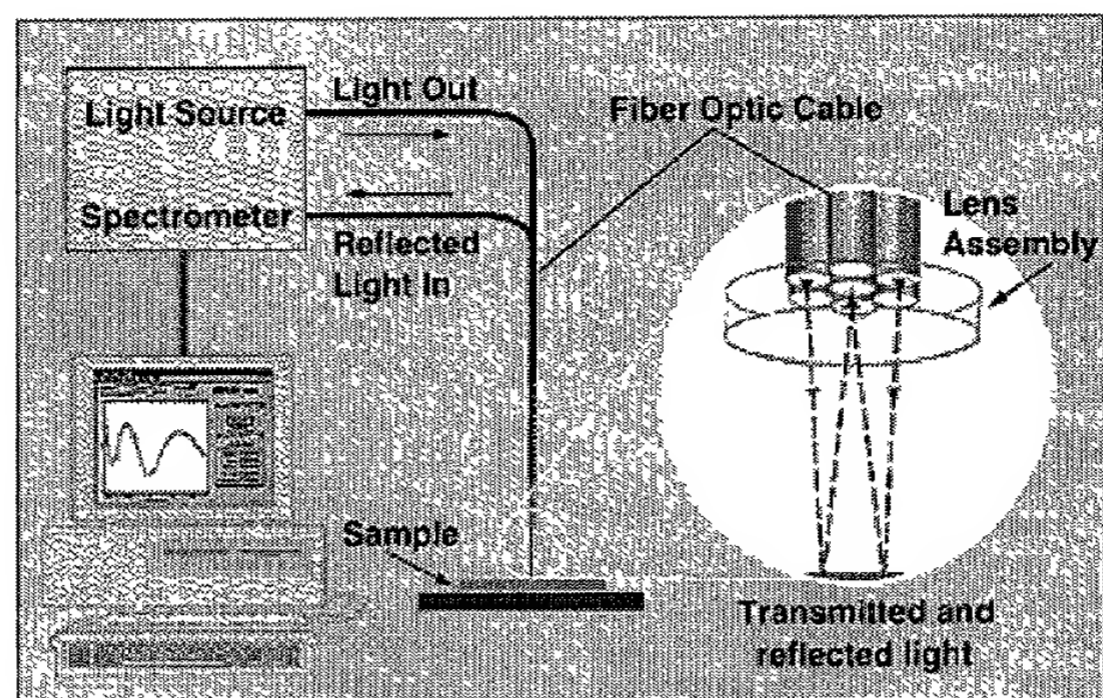
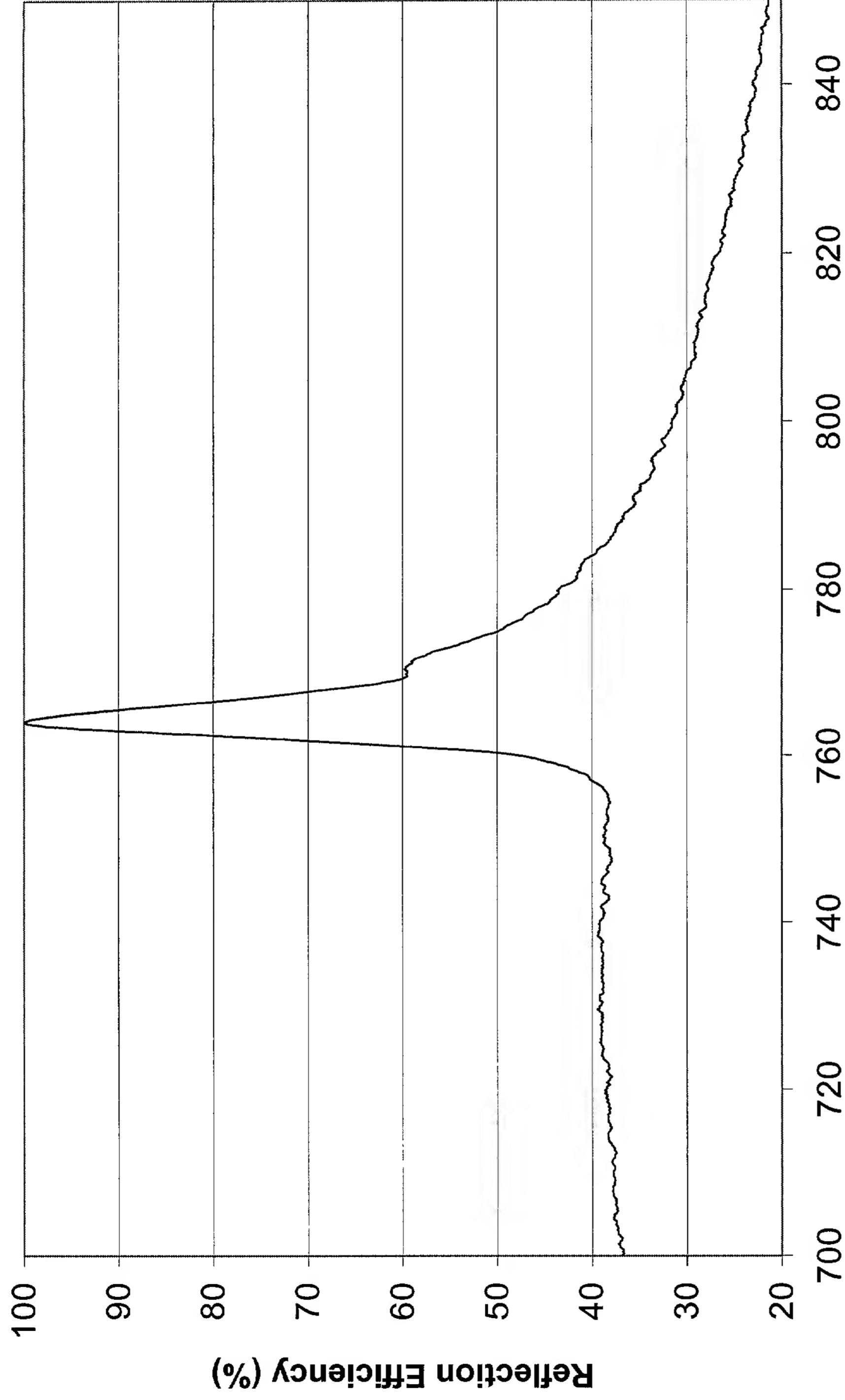


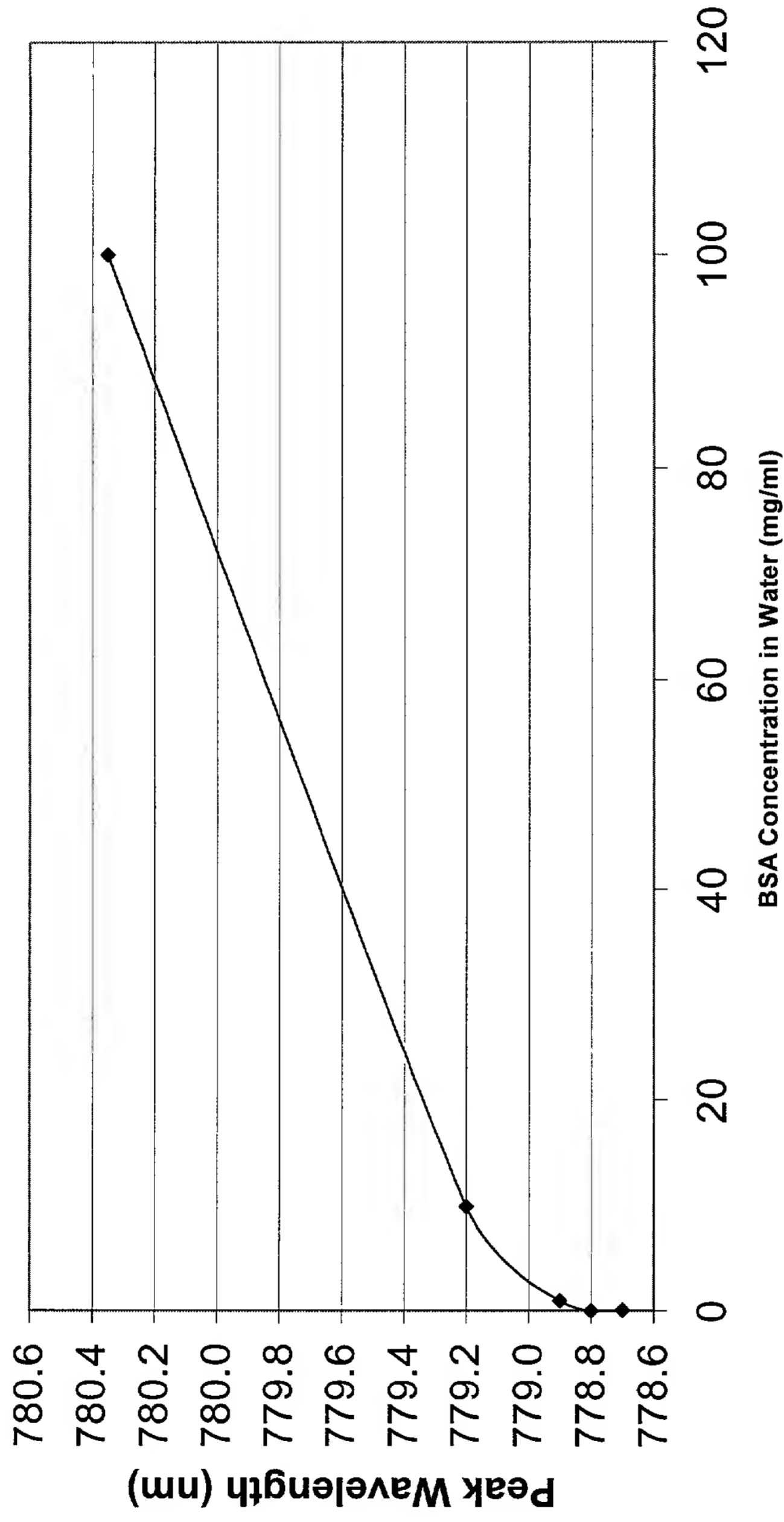
Figure 33

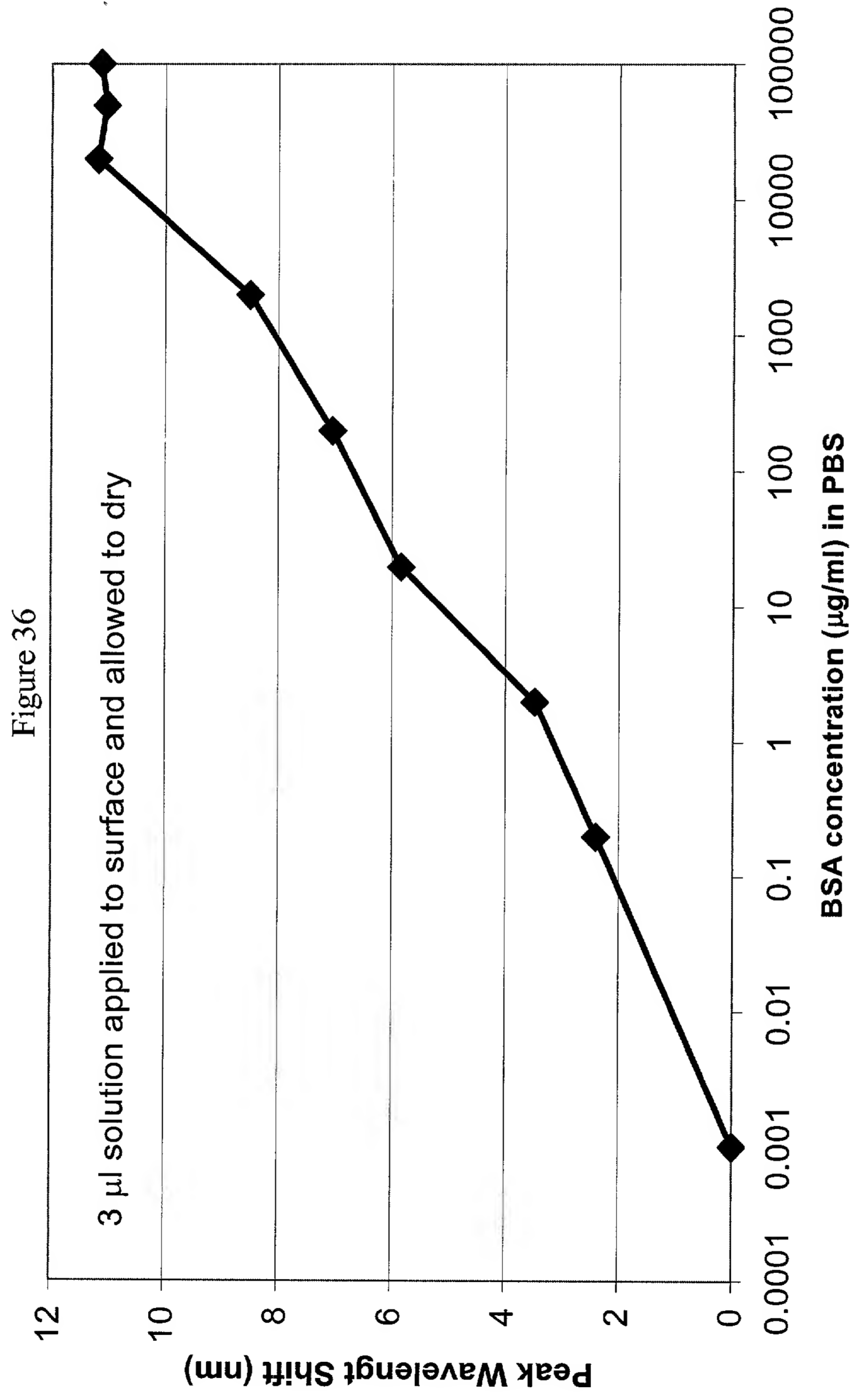


Wavelength (nm)

Figure 34

Figure 35





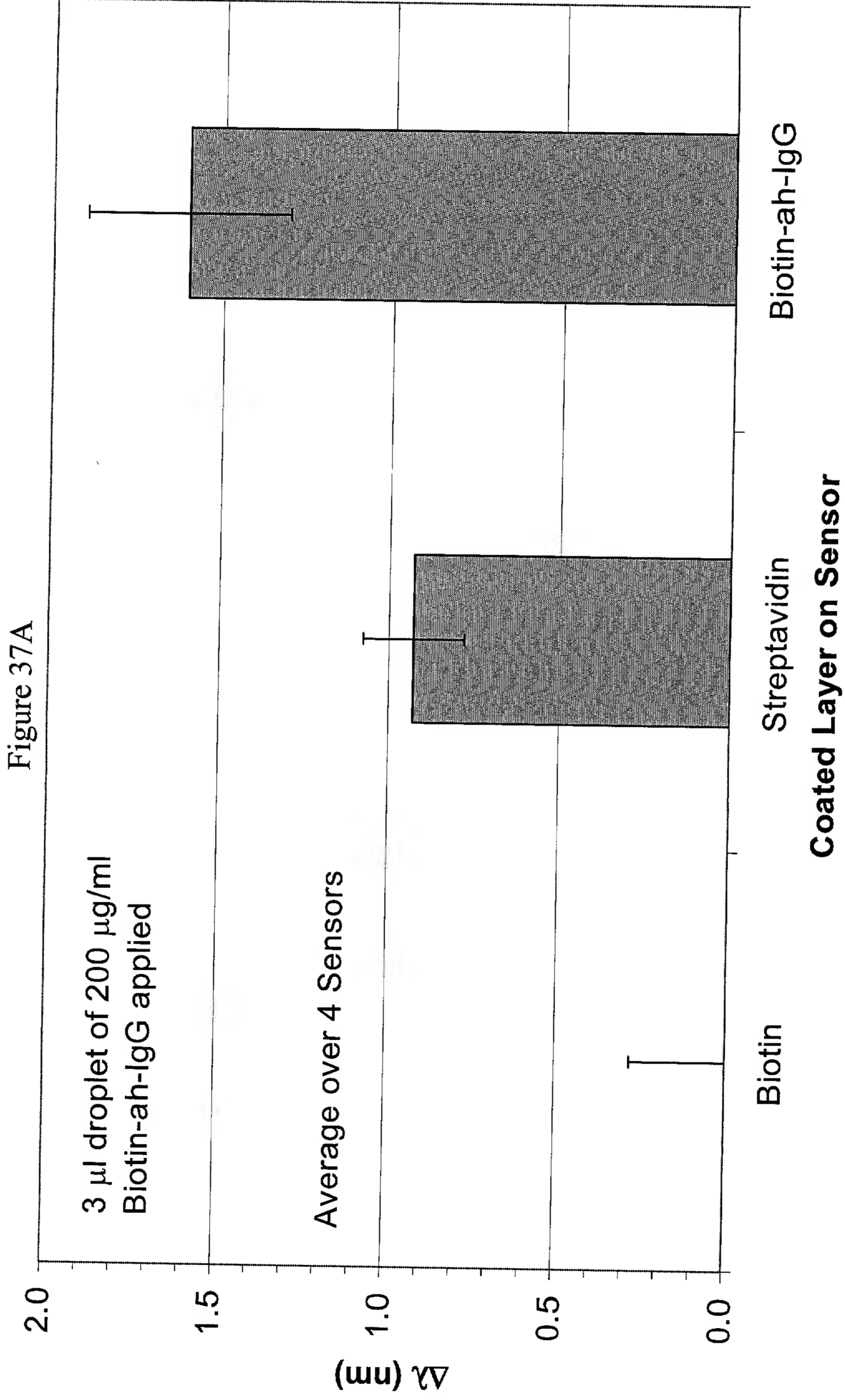
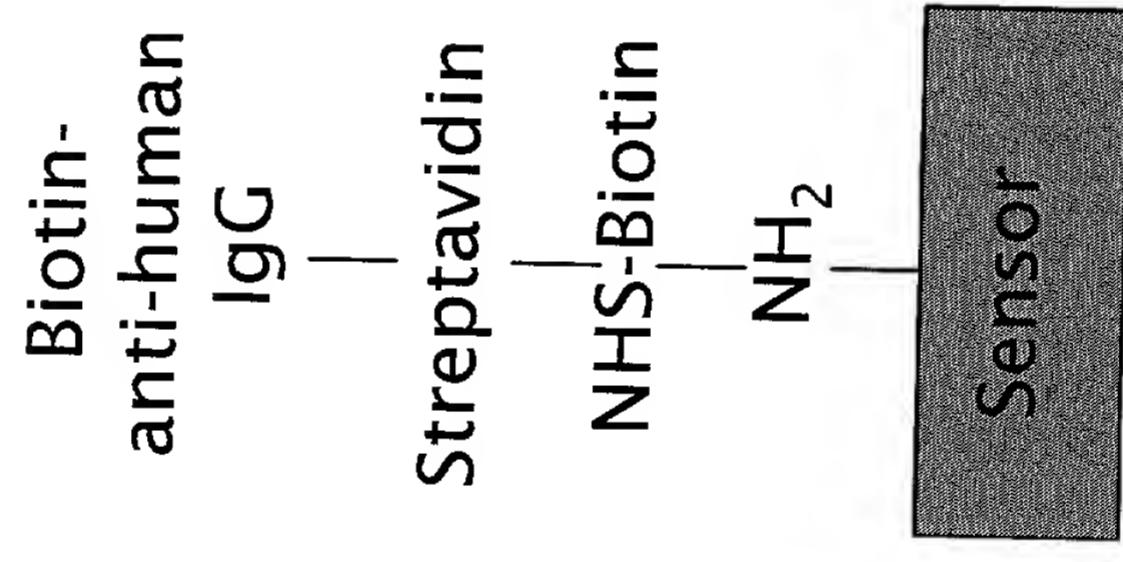


Figure 37B



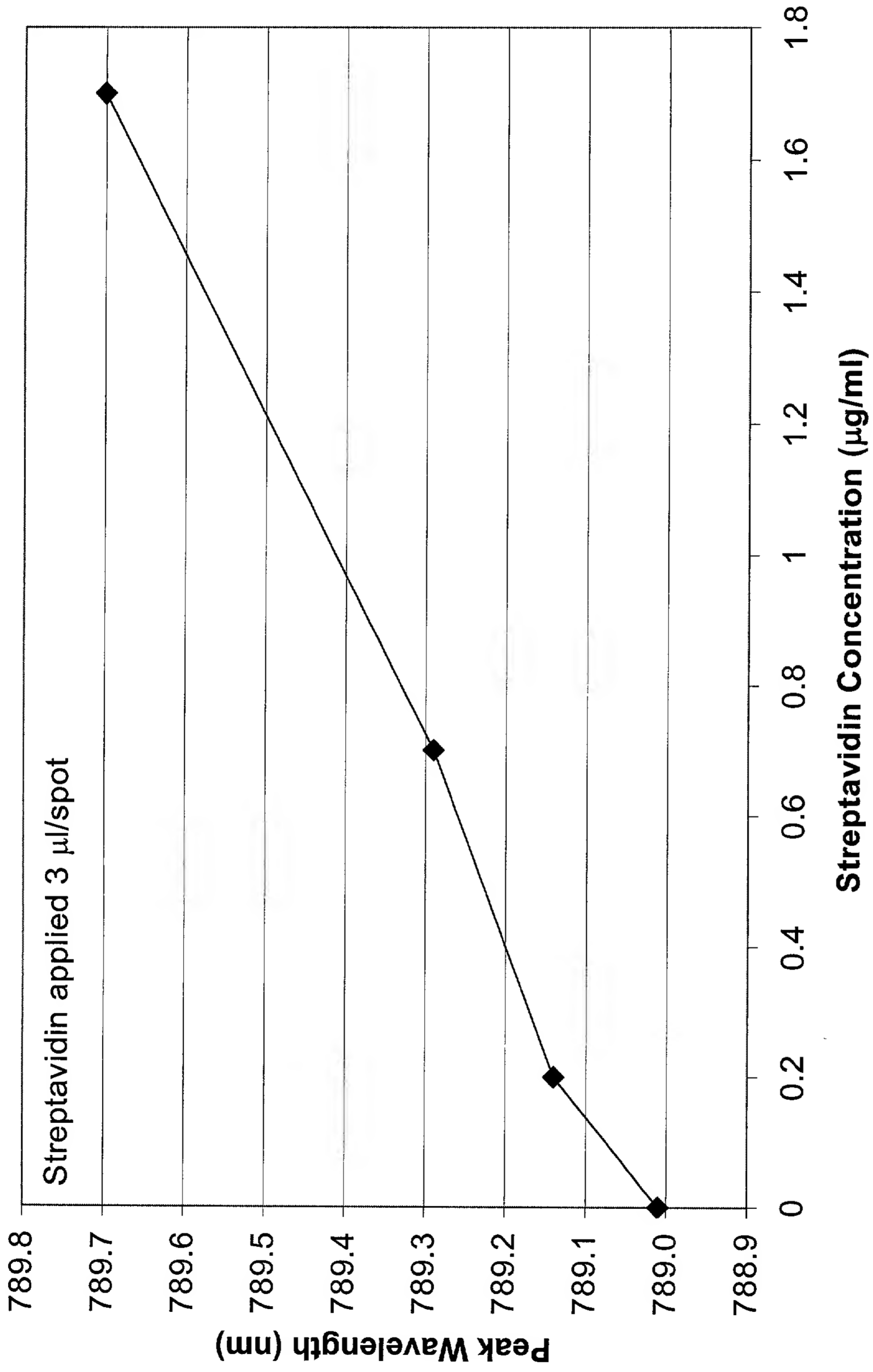
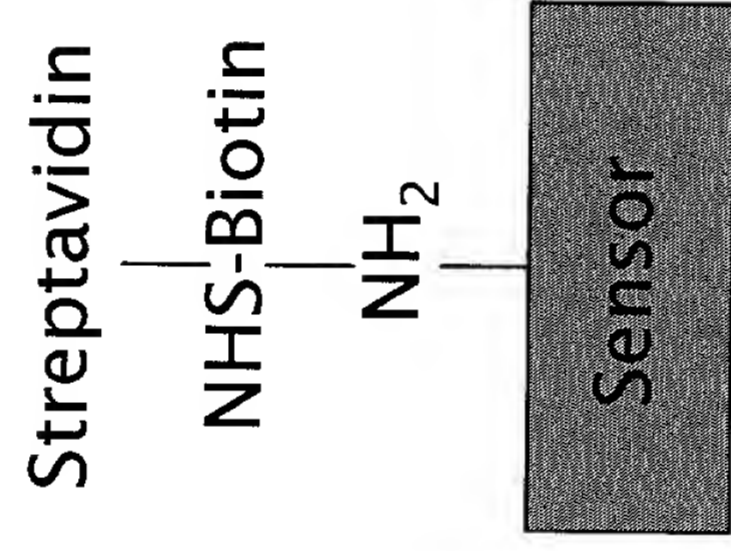


Figure 38A

Figure 38B



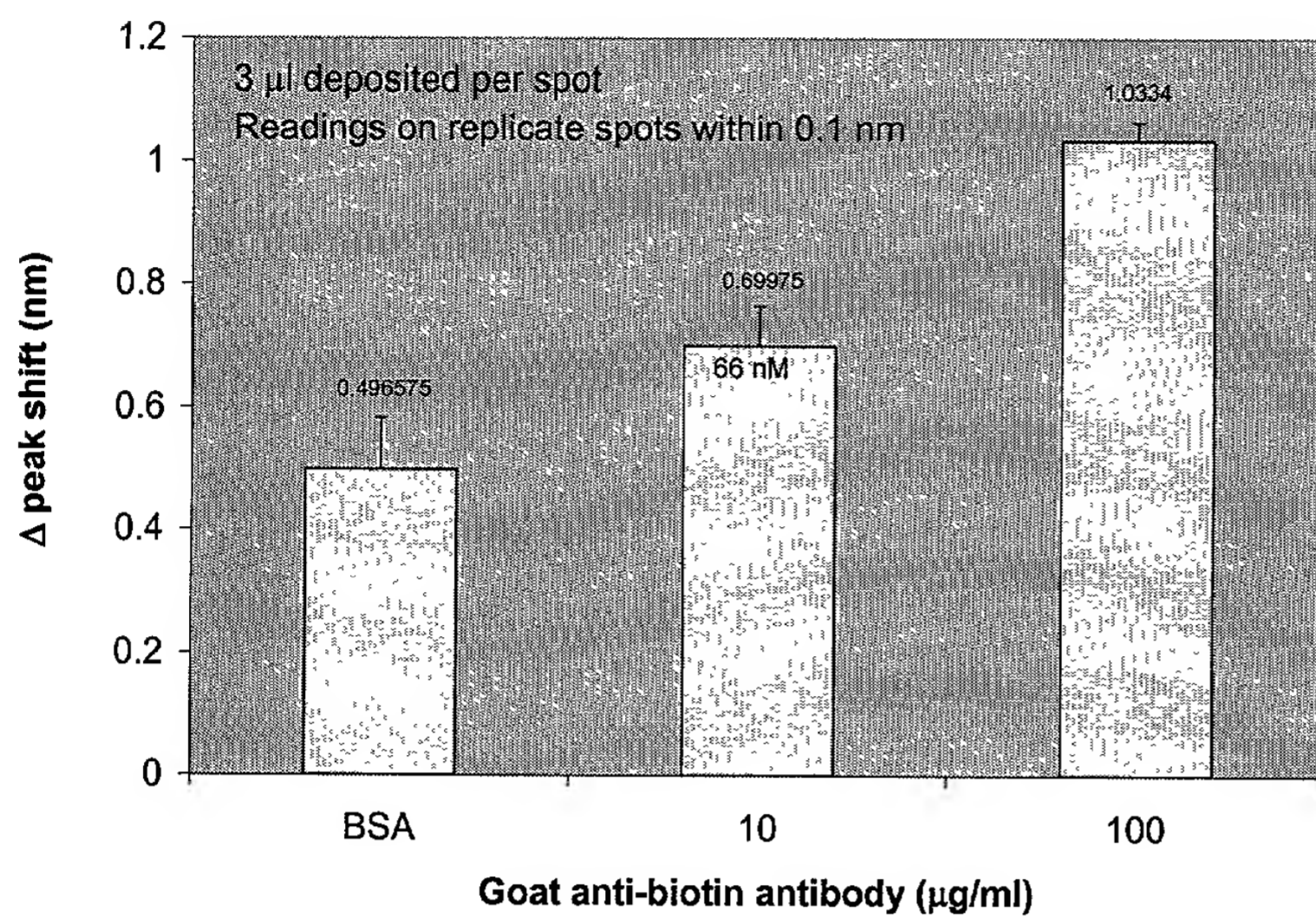


Figure 39A

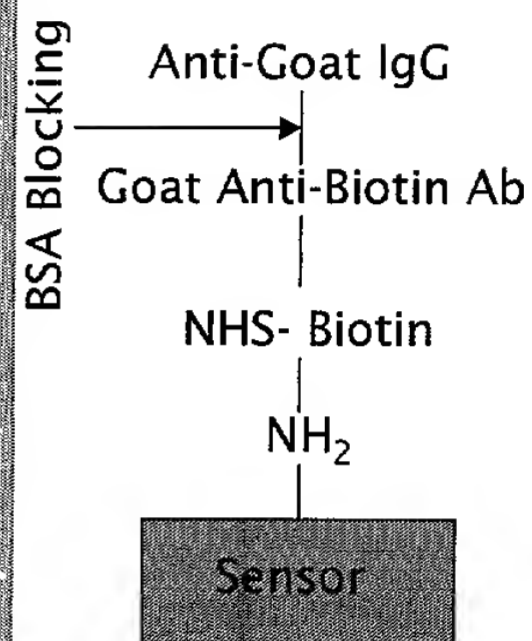


Figure 39B

Figure 39

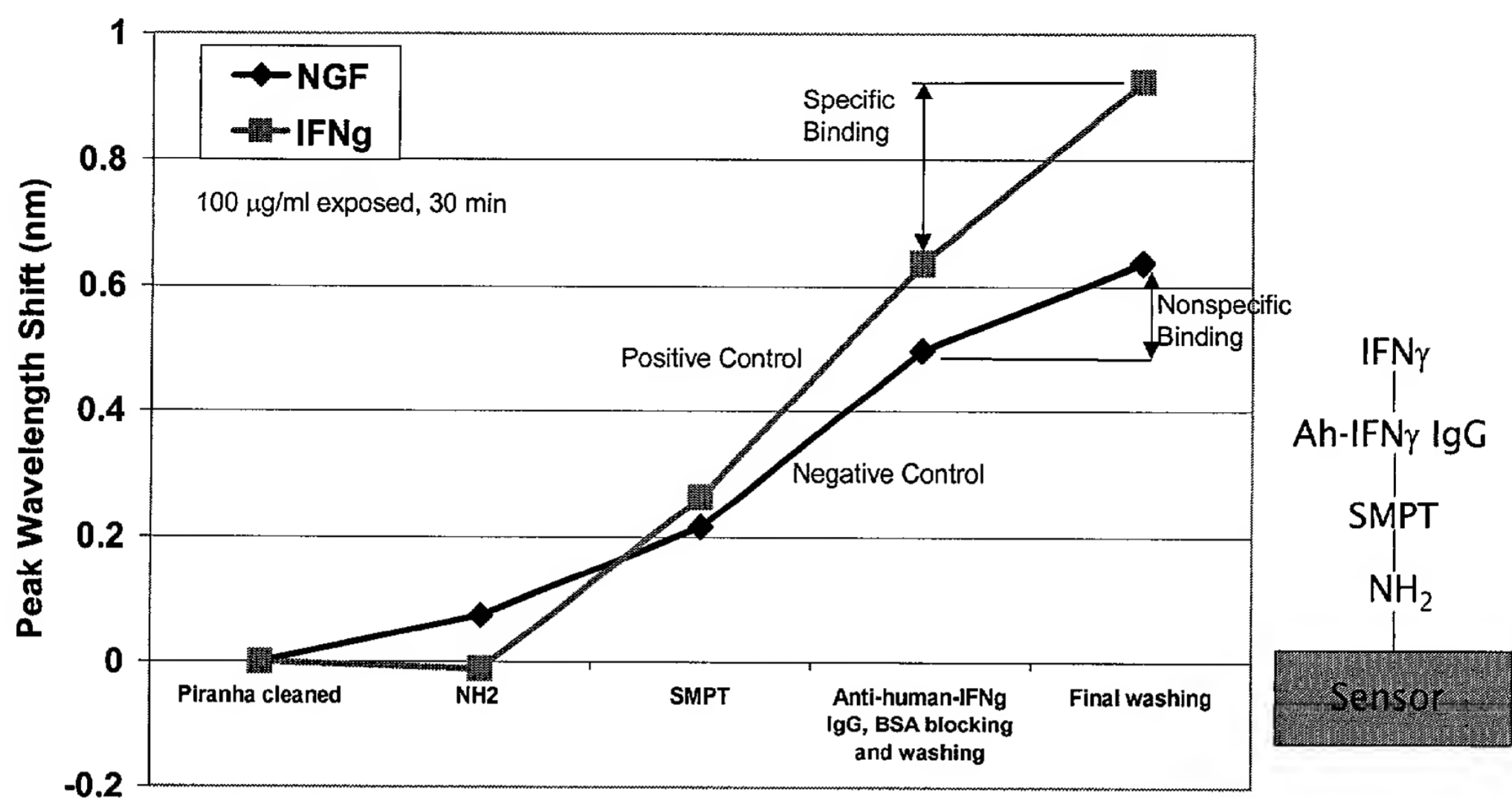


Figure 40A

Figure 40B

Figure 40

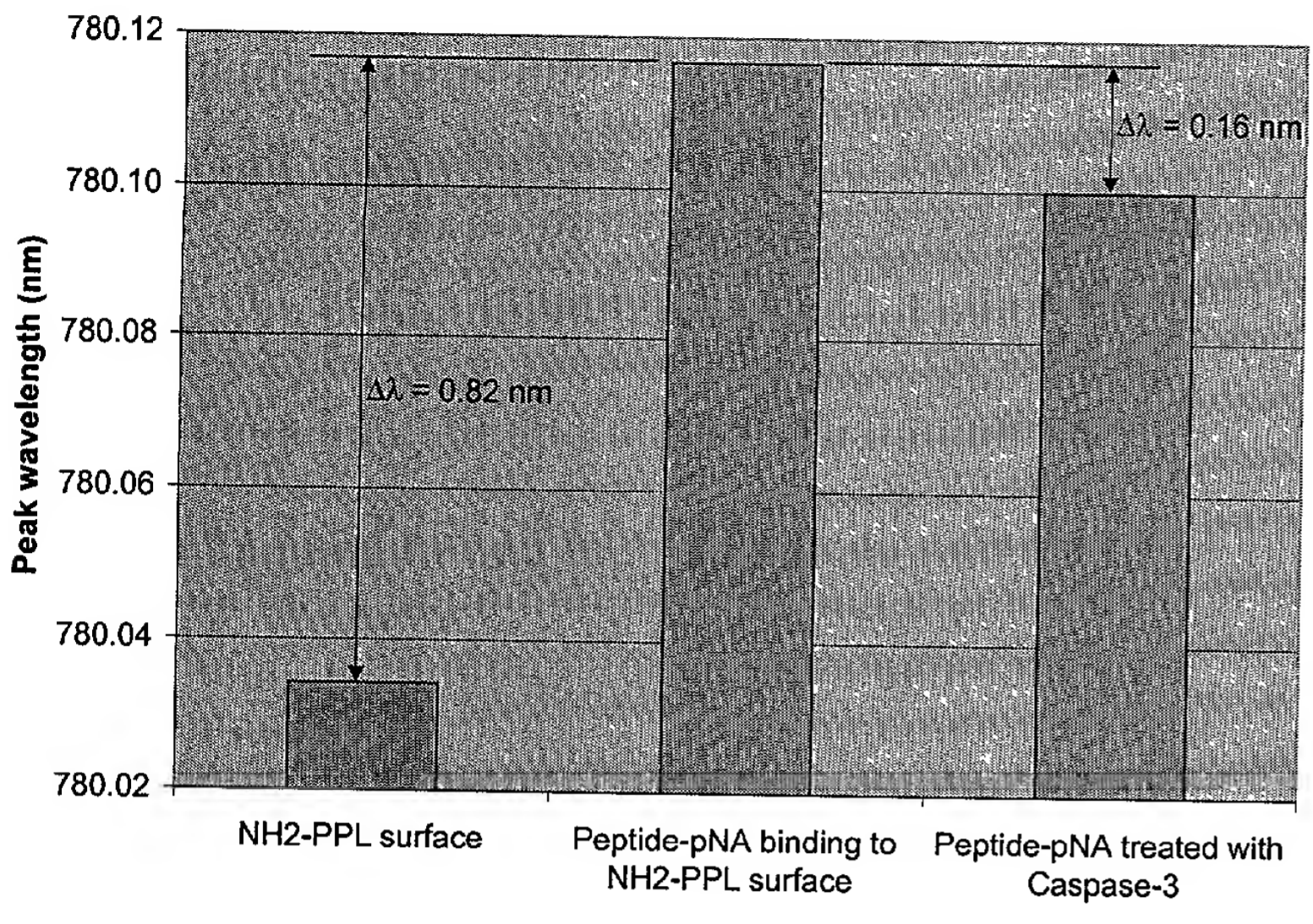


Figure 41A

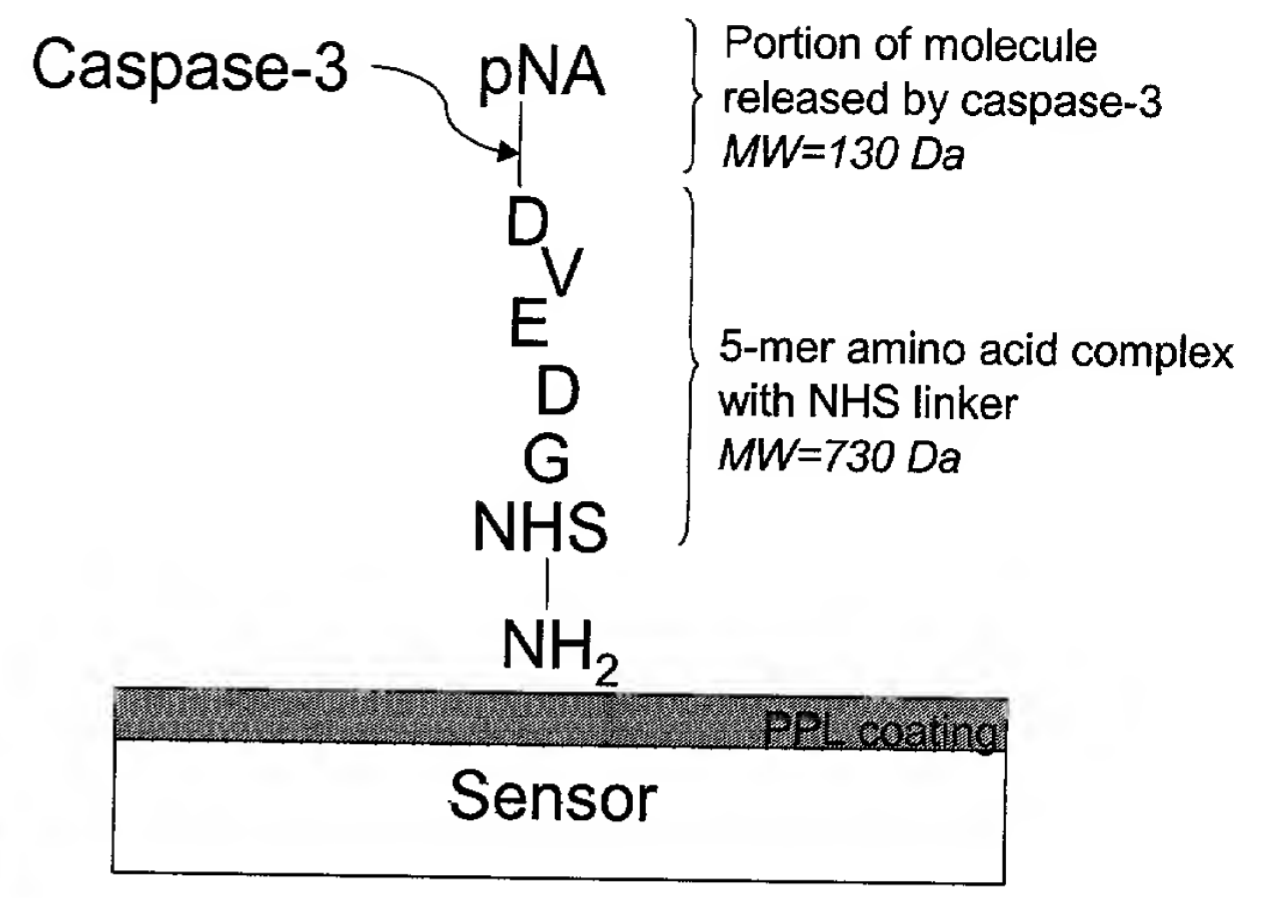


Figure 41B

Figure 41

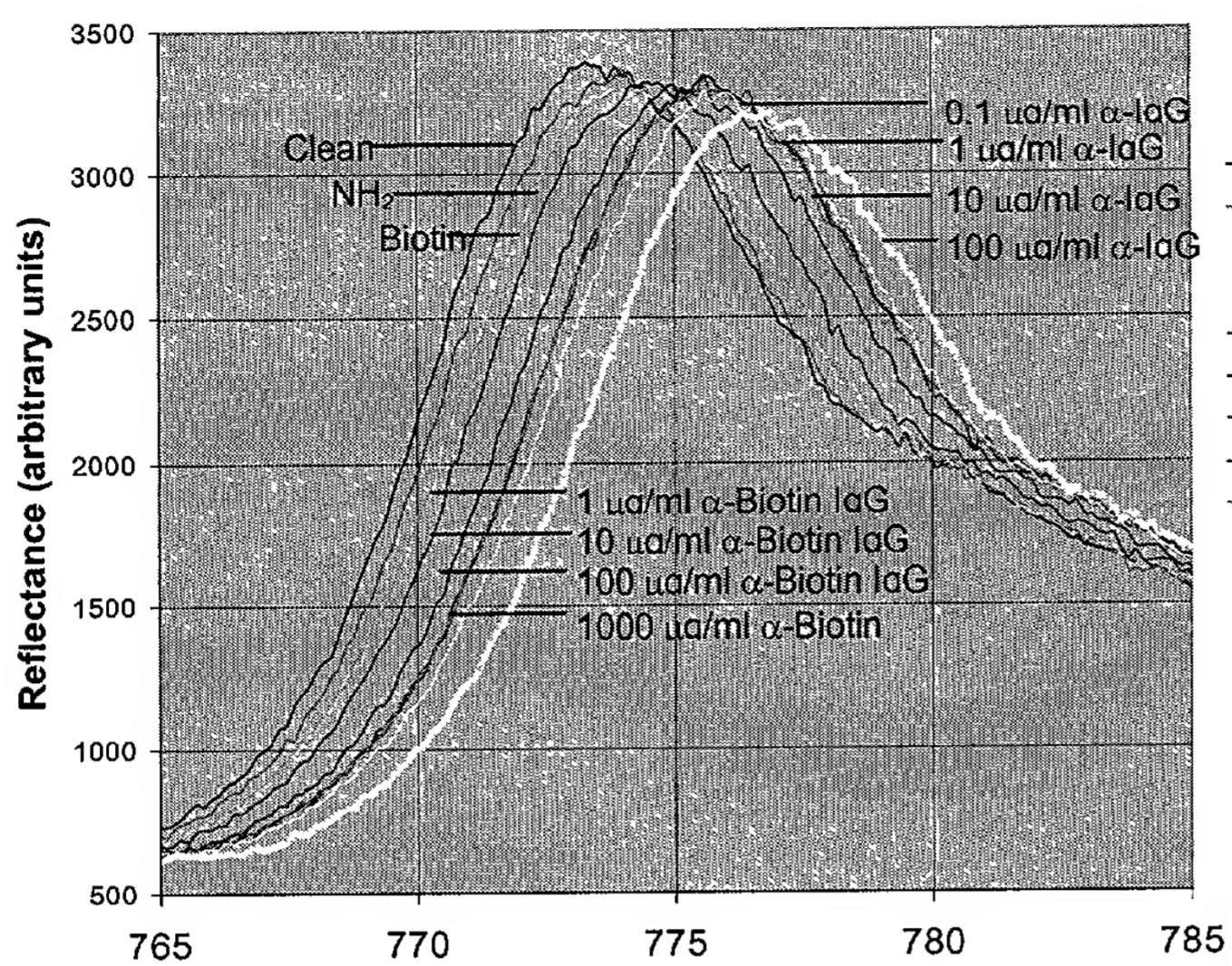


Figure 42A

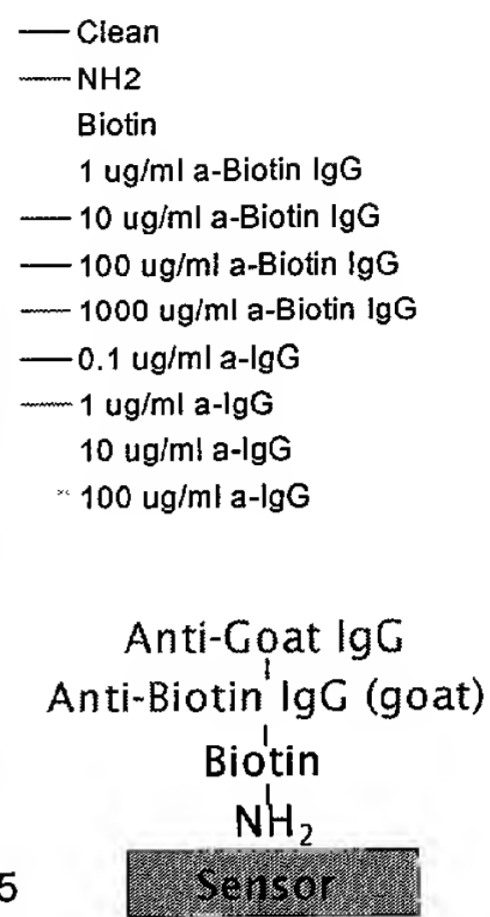


Figure 42B

Figure 42

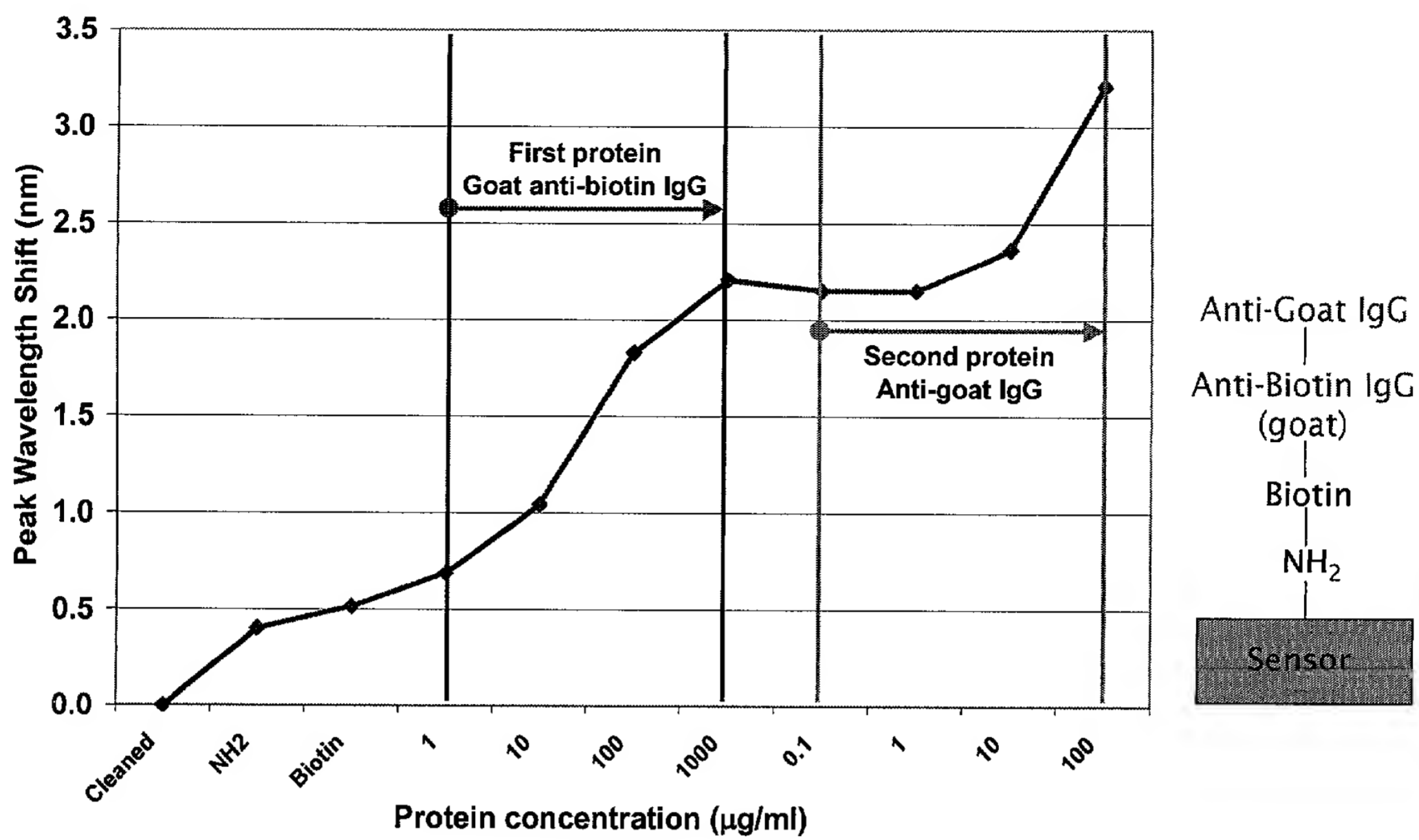


Figure 43A

Figure 43B

Figure 43

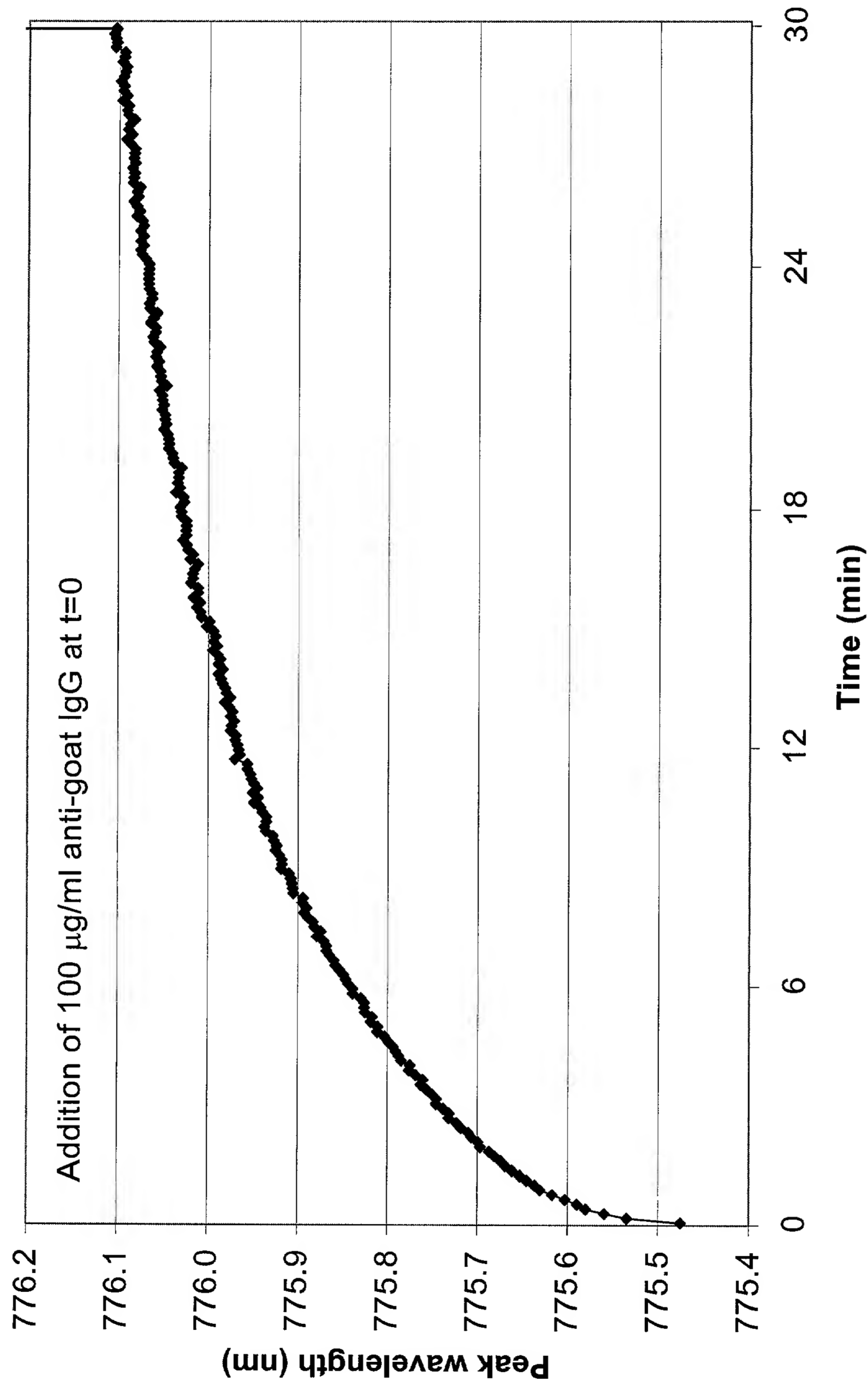
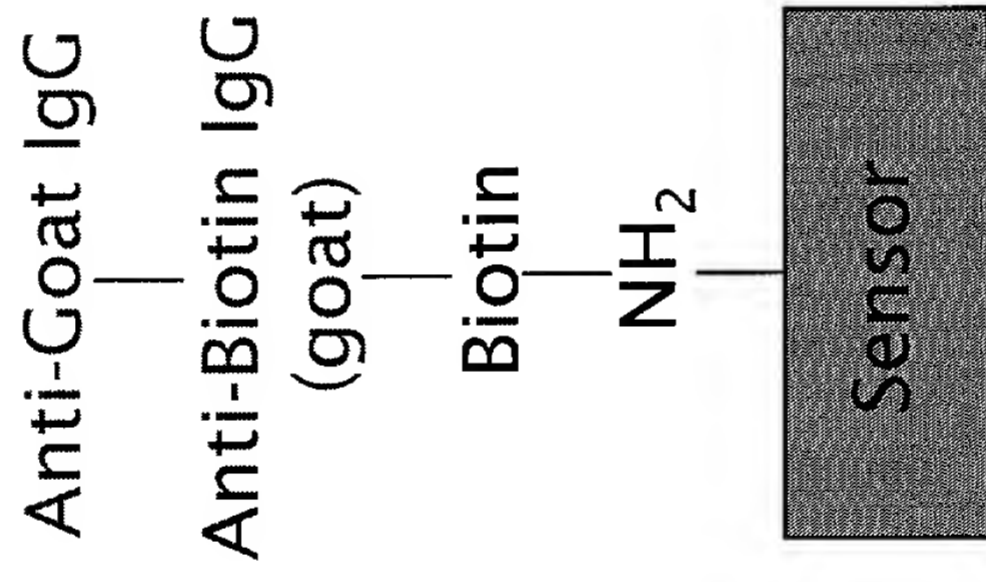


Figure 44A

Figure 44B



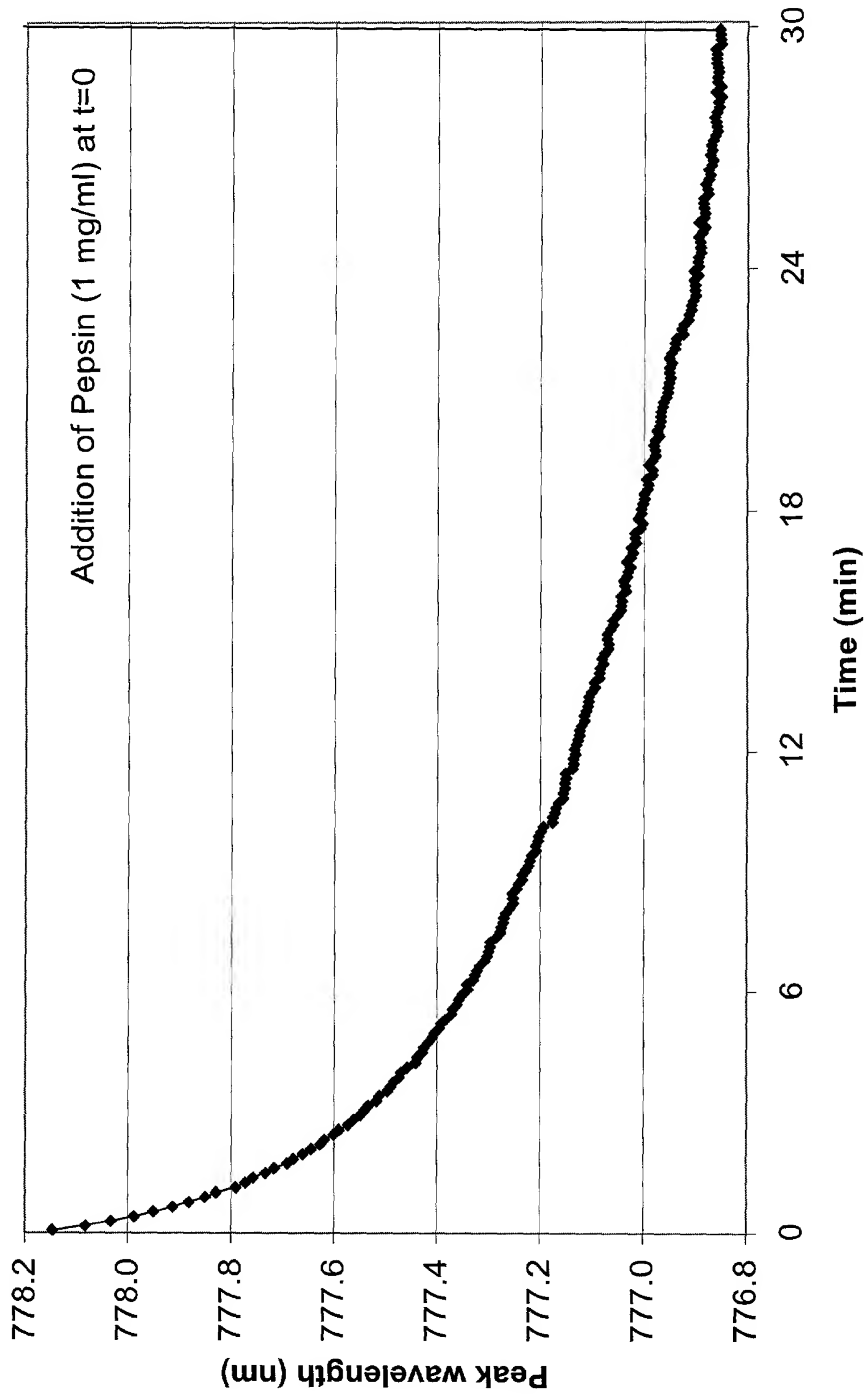
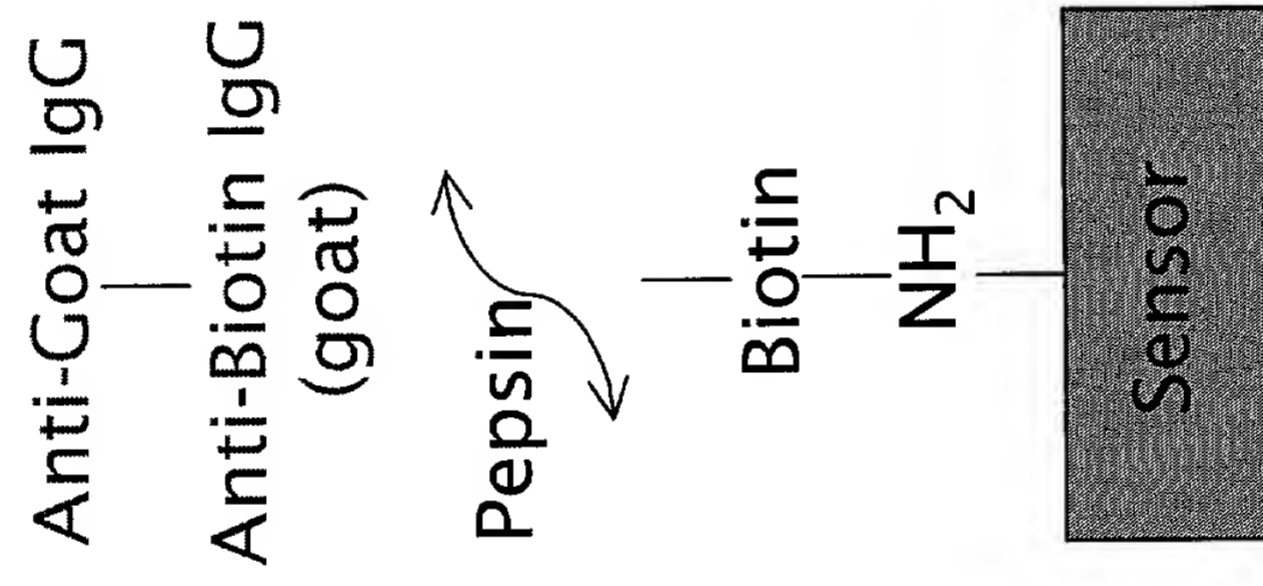


Figure 45A

Figure 45B



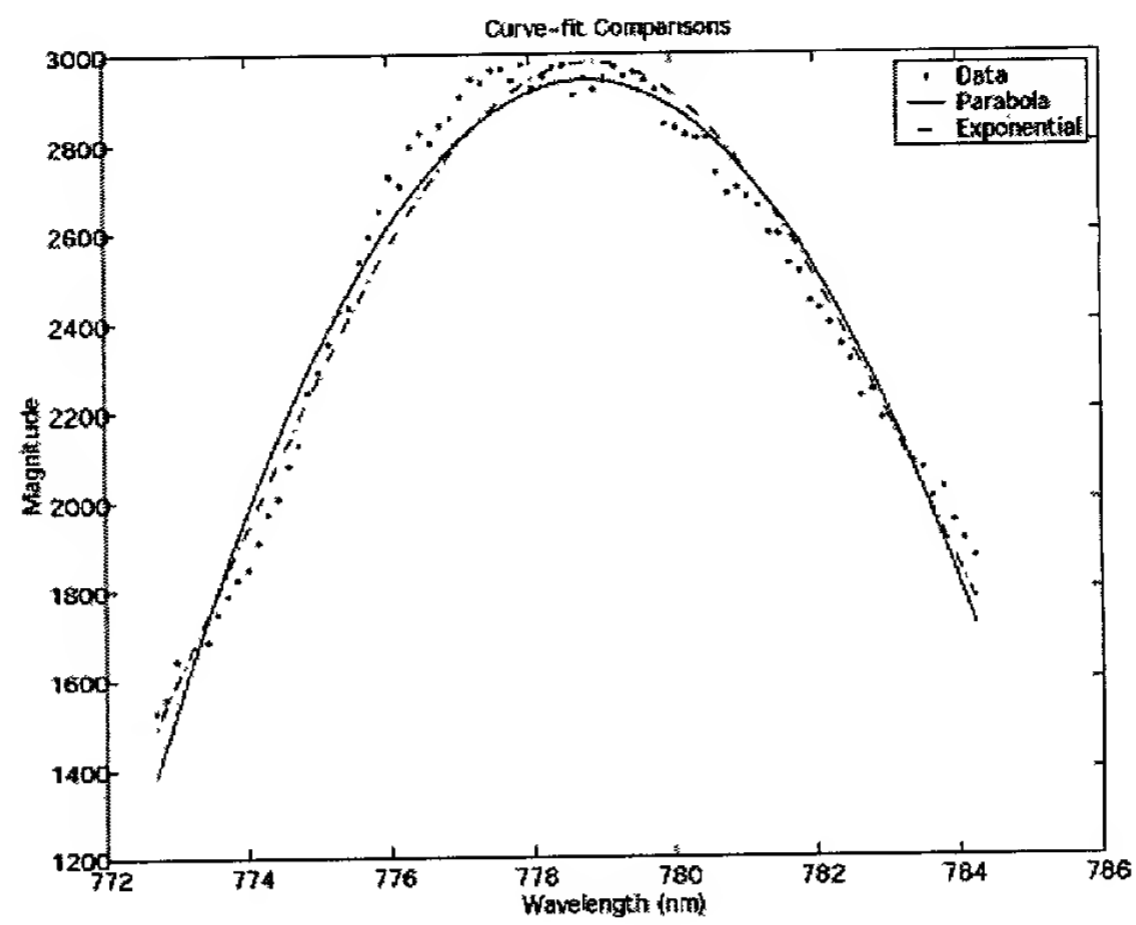


Figure 46

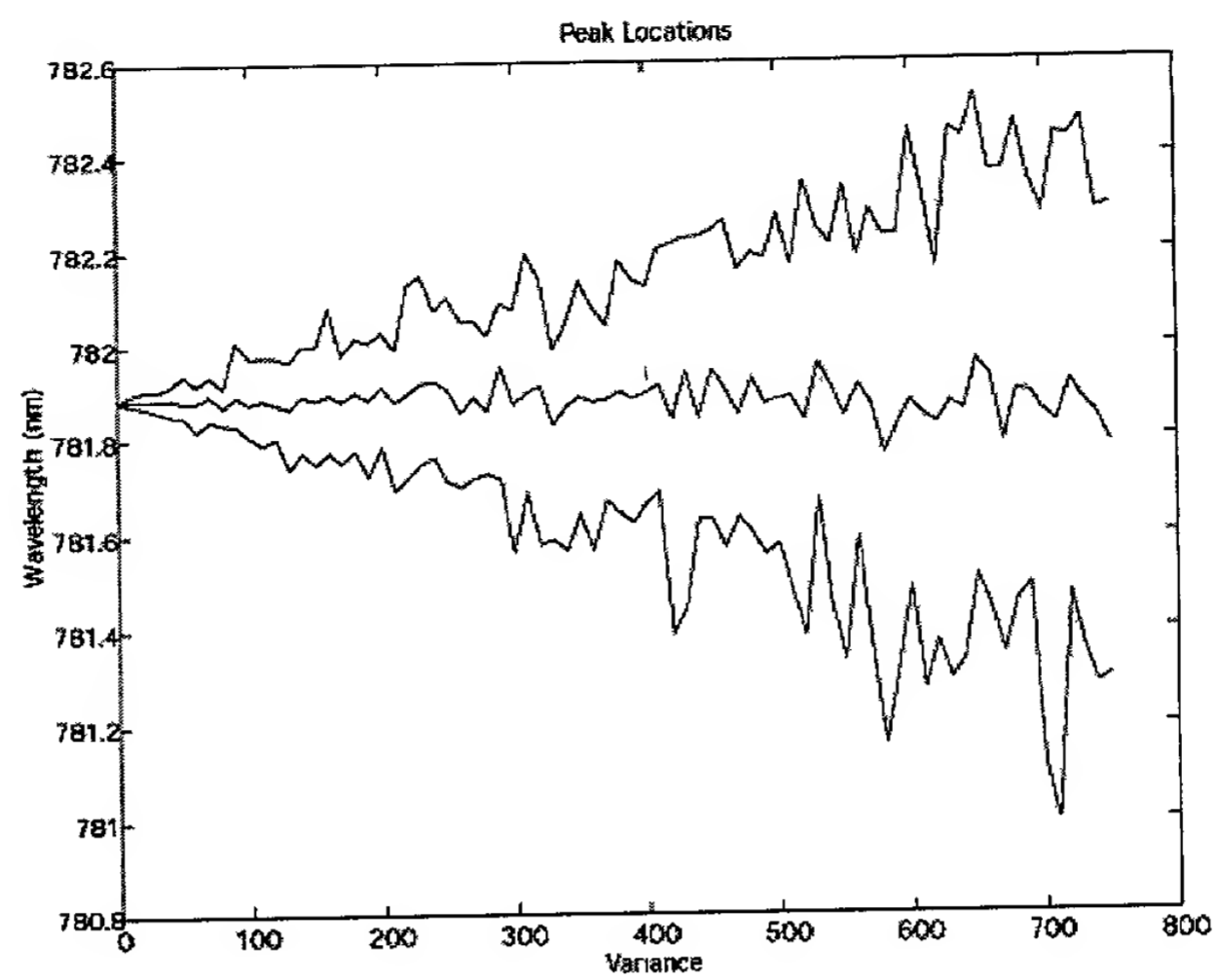
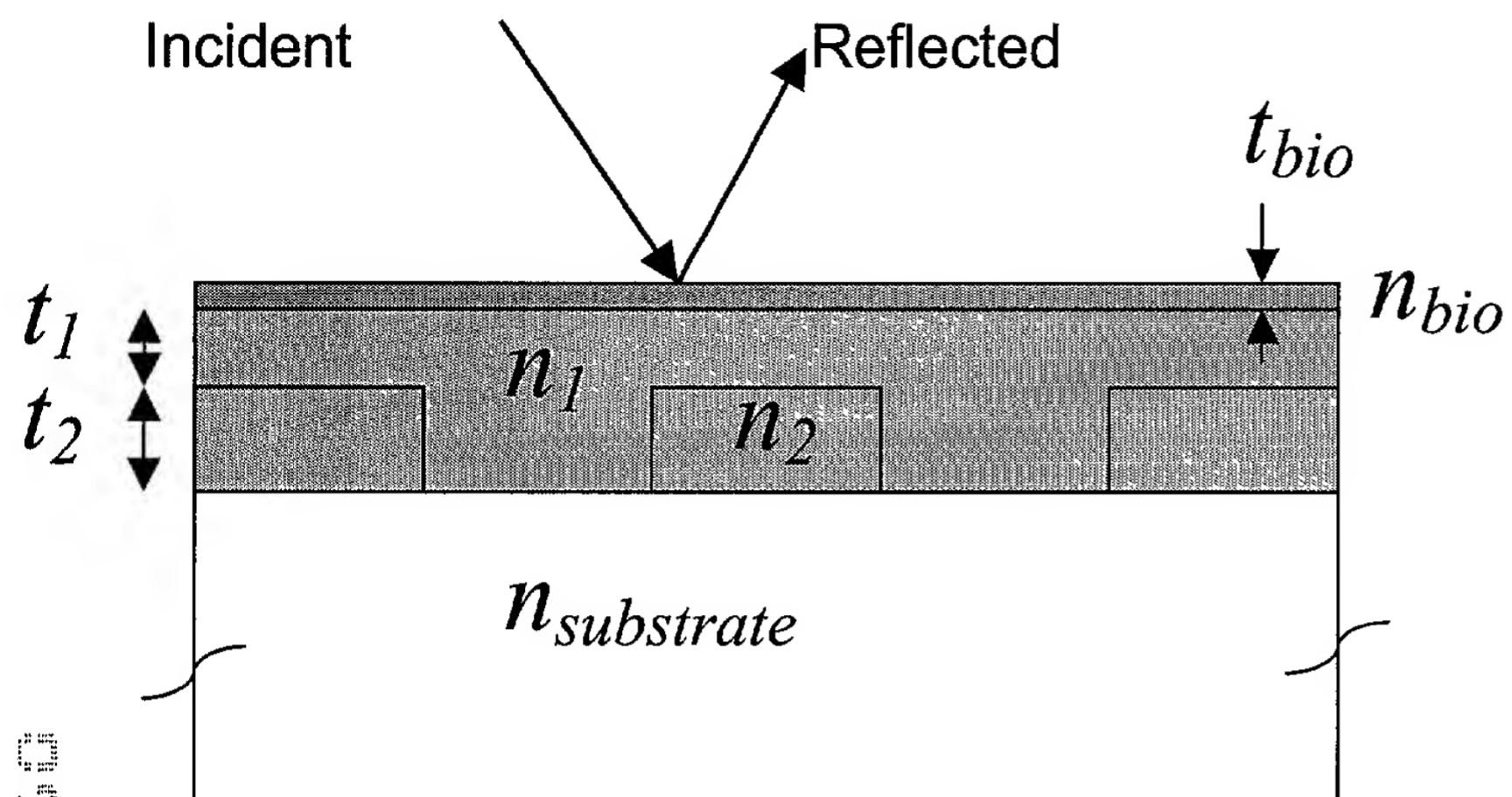


Figure 47



Material 1 = Electrical Insulator (photoresist, epoxy, glass)

Material 2 = Indium tin oxide conductor

Substrate = Glass

FIGURE 48

Concentric Circle Design

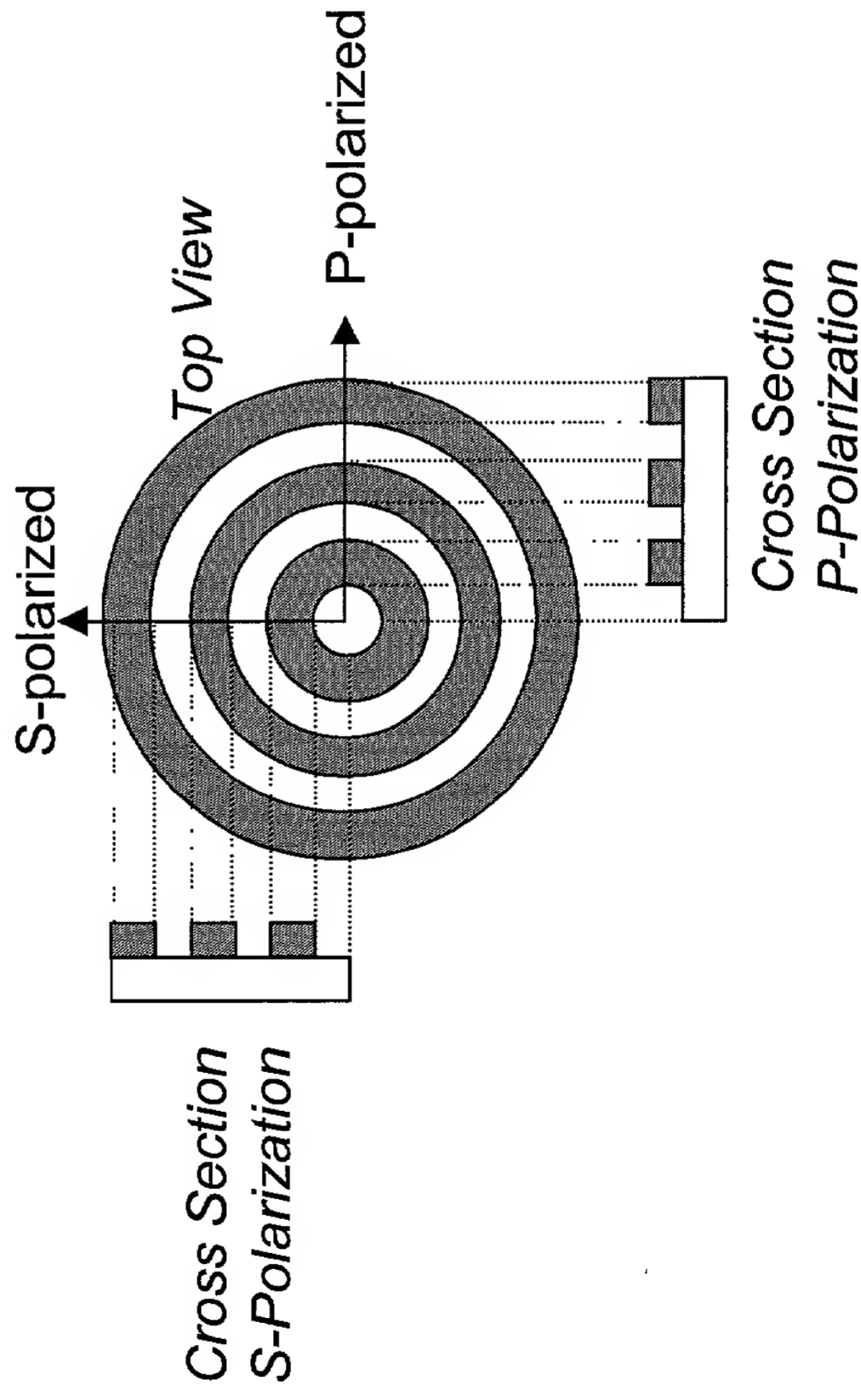


Figure 49

Figure 50
Hexagonal Grid Design

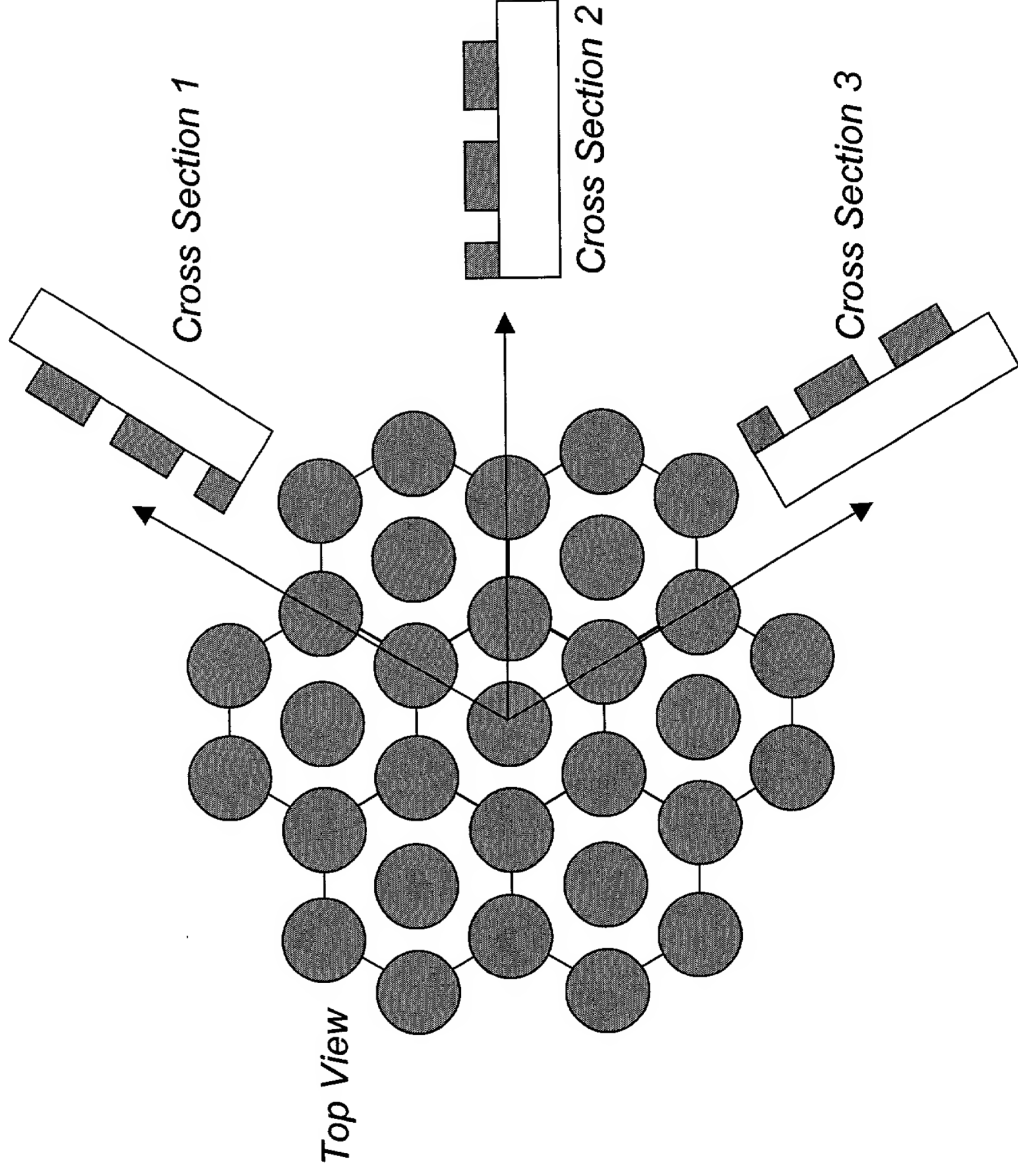
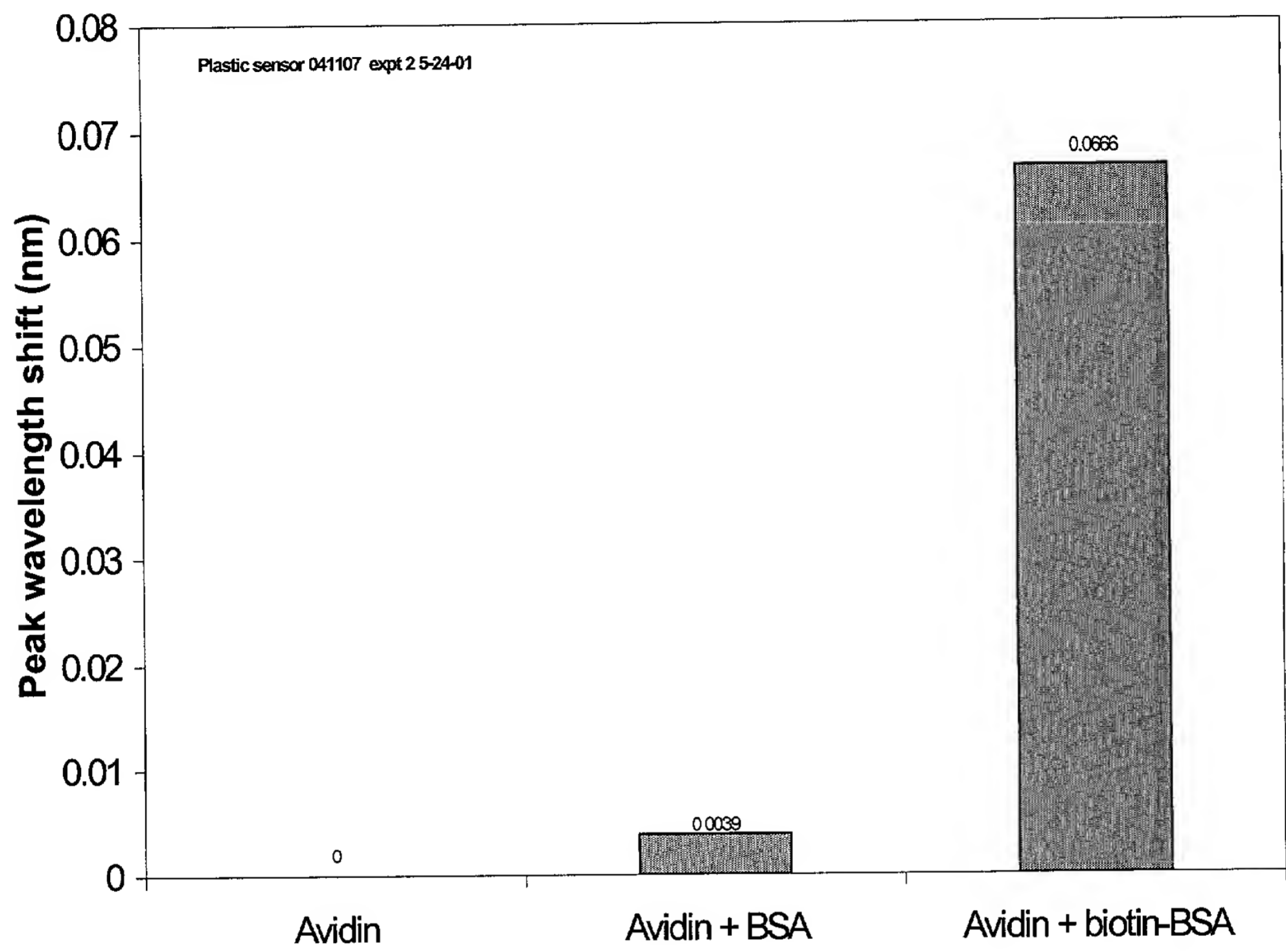


Figure 51



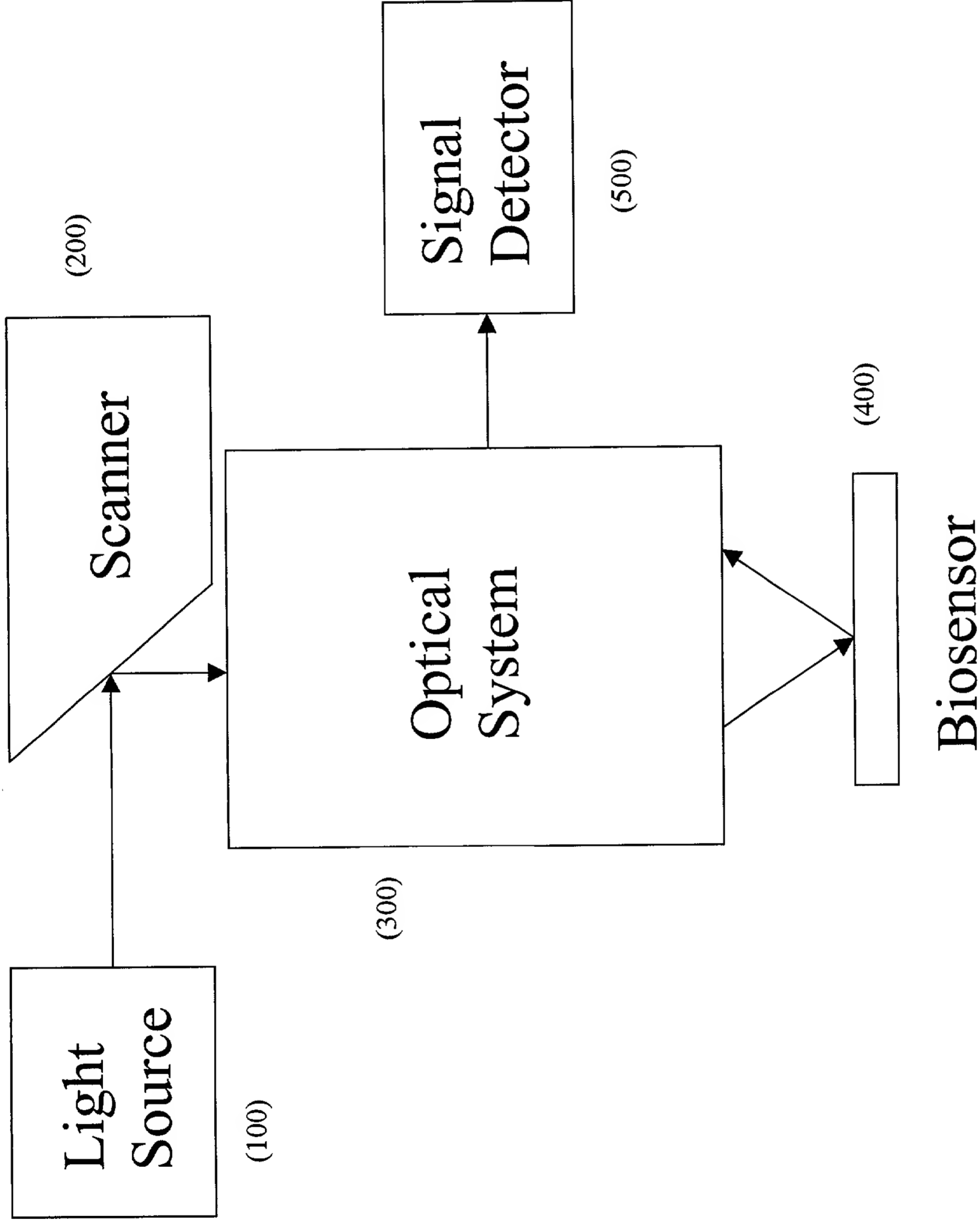


Figure 52